

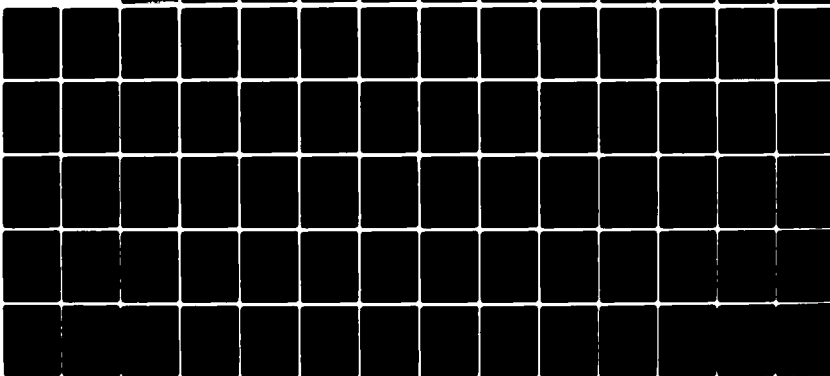
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NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER ATL--ETC F/G 1/2  
LOS ANGELES INTERNATIONAL AIRPORT DATA PACKAGE NUMBER 6, AIRPOR--ETC(U)  
NOV 79

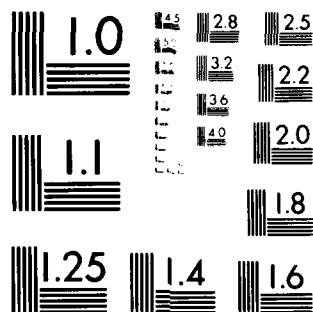
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# LOS ANGELES INTERNATIONAL AIRPORT

DATA PACKAGE NO. 6  
AIRPORT IMPROVEMENT  
TASK FORCE DELAY STUDIES

Number

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**DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

DATE: November 1, 1979

IN REPLY  
REFER TO: ANA-220

NATIONAL AVIATION FACILITIES  
EXPERIMENTAL CENTER  
ATLANTIC CITY, NEW JERSEY 08405



SUBJECT: Los Angeles Simulation Model Results for Stage 1 Experiments

FROM: Program Manager, ANA-220

TO: Royal Mink, AWE-4

Enclosed is data package No. 6 for review by the Task Force members. Data package No. 5 should accompany this data package as a reference for the demand schedules applied to the simulation model for the Stage 1 experiments.

Attachment A is a list of the Stage 1 and Stage 2 experiments. Attachment B contains the calibration of the model which was redone to accomodate changes in the model.

The Stage 1 experiments (attachment C) are arranged in sets to illustrate various comparisons requested by the Task Force members. VRF and IFR weather conditions have been separated along with each configuration (westerly, easterly and night time operations). Each experiment contains a description of the objective the runway configuration, the related experiments and a summary of the results. A link mode diagram is included to illustrate the airfield changes noted in the experiment.

The results of the experiments are presented in the following sets:

- Set 1 - Experiments 1, 7, 7A, 7B, 11, and 13
- Set 2 - Experiments 2, 3, 8, 8A, 8B, and 12
- Set 3 - Experiments 6, 9, and 16
- Set 4 - Experiments 4, 10, and 15
- Set 5 - Experiments 5 and 10A

A

A plot of the comparison data is provided at the end of each set of experiments.

The Los Angeles Stage 2 Delay Experiments are summarized in Attachment D of this data package. Link mode diagrams are included which depict the airport layout for the experiment.

JOHN VANDERVEER

Enclosures

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ATTACHMENT A

LOS ANGELES DELAY EXPERIMENTS

LOS ANGELES INTERNATIONAL AIRPORT

AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES

TABLE 1  
LOS ANGELES DELAY EXPERIMENTS

Experiment number	Model	Study case <sup>a</sup>	Arrival runways	Departure runways	Weather	Demand	ATC System scenario <sup>b</sup>	Near Term Improvements
Stage 1 Experiments <sup>d</sup>								
1	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1978	1978	None
2	ASM	2	24L, 24R, 25L, 25R	24L, 25R	IFR1	1978	1978	None
3	ASM	3	24R, 25L	24L, 25R	IFR2	1978	1978	None
4	ASM	5	6R, 7L	24L, 25R	VFR1	1978	1978	None
5	ASM	6	6R, 7L	24L, 25R	IFR1	1978	1978	None
6	ASM	4	6L, 6R, 7L, 7R	6L, 6R, 7L, 7R	VFR1	1978	1978	None
7 (7A) (7B)	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982 (+5%) (+15%) 1978	1982	None
8 (8A) (8B)	ASM	2	24L, 24R, 25L, 25R	24L, 25R	IFR1	1982 (+5%) (+15%) 1978	1982	None
9	ASM	4	6L, 6R, 7L, 7R	6L, 6R, 7L, 7R	VFR1	1982	1978	None
10	ASM	5	6R, 7L	24L, 25R	VFR1	1982	1978	None
10A	ASM	6	6R, 7L	24L, 25R	IFR1	1982	1978	None
11	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	1982 <sup>e</sup>
12	ASM	2	24L, 24R, 25L, 25R	24L, 25R	IFR1	1982	1982	1982
13	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	2, 3 <sup>f</sup>
15	ASM	5	6R, 7L	24L, 25R	VFR1	1982	1982	5, 7 <sup>g</sup>
16	ASM <sup>h</sup>	4	6L, 6R, 7L, 7R	6L, 6R, 7L, 7R	VFR1	1982	1982	5, 7, 8 <sup>g</sup>
17	ADM <sup>i</sup>	n.a.	n.a.	n.a.	n.a.	1978	1978	None
17A	RCM <sup>j</sup>	7	24L, 24R, 25L	24L, 24R, 25L	VFR1	1982	1982	Tunnel Construction <sup>j</sup>
17B	RCM <sup>j</sup>	7	24L, 24R, 25L, 25X <sup>k</sup>	24L, 24R, 25L, 25X	VFR1	1982	1982	Tunnel Construction
17C	RCM <sup>j</sup>	7	24L, 24R, 25L, 26	24L, 24R, 25L, 26	VFR1	1982	1982	Comments-Usage for Light

n.a. = not applicable.

a. Study cases (combinations of runway use and weather conditions) are defined in Figure III-1.

b. FAA will describe impact of 1982 and post-1987 ATC systems on model inputs.

c. Potential near-term improvements are identified in the Los Angeles International Airport Improvement Task Force Interim Report, and in Appendix B.

d. Airfield Simulation Model.

e. Task Force establishes packages of near-term improvements most likely to be implemented in 1982 and 1987 time frames. The 1982 package includes improvement # 2 (high-speed taxiway off Runway 25L to the south), improvement # 3 (strengthening of the Sepulveda Tunnel), (cont.)

TABLE 1 (CONTINUED)

- e. (cont.) new taxiway access to threshold of Runway 24R, and temporary holding areas on future Taxiway 75. The 1987 package includes all 1982 improvements plus Satellite 1, International Terminal, and/or remote parking for 20 aircraft at west end of airport. These packages of improvements are subject to Task Force review and revision.
- f. Impact of absence of improvements # 2 and #3 (high-speed taxiway of Runway 25L and strengthening of the Sepulveda Tunnel).
- g. Improvement # 5 is a high-speed taxi exit off Runway 7. Improvement # 7 is a high-speed taxi exit to Taxiway 47 from Runway 6R. Improvement #8 is a bypass area on the north side of Runway 7L.
- h. Annual Delay Model.
- i. Runway Capacity Model.
- j. Runway 25R closed for tunnel construction.
- k. During closure of 25R for tunnel construction, parts of Runway 25 are open for small aircraft arrivals and departures.

TABLE 1  
LOS ANGELES DELAY EXPERIMENTS

Experiment number	Model	Study case <sup>a</sup>	Arrival Runways	Departure Runways	Weather	Demand	ATC System <sup>b</sup> scenario	Near-term improvements <sup>c</sup>
Stage 2 Experiments								
18	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	10 <sup>1</sup>	
19 A	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1978	Terminal Expansion
20	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	Terminal Expansion
21	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	Remote Terminal
22	ASM	7	24L, 24R, 25L	24L, 24R, 25L	VFR1	1982	1982	Tunnel Construction
22A	ASM	8	24L, 24R, 25L	24L, 24R, 25L	VFR1	1982	1978	Dual Taxiway <sup>p</sup>
23	ASM	8	24R, 25L	24L, 25L	IFR1	1982	1978	Tunnel Construction 25R
24	ASM	9	24R, 25R	24L, 25R	IFR1	1982	1978	Tunnel Construction 25L
25	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1987	1987	1987 <sup>e</sup>
25A	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1987	1987	1987
26	ASM	2	24L, 24R, 25L, 25R	24L, 24R	IFR1	1987	1987	1987
27	ADM	n.a.	n.a.	n.a.	n.a.	1982	1982	1982
28	ADM	n.a.	n.a.	n.a.	n.a.	1982	1982	None
29	ADM	n.a.	n.a.	n.a.	n.a.	1982	1978	1982
30	ADM	n.a.	n.a.	n.a.	n.a.	1982	1978	None
31	ADM	n.a.	n.a.	n.a.	n.a.	1987	1987	1987
32	ADM	n.a.	n.a.	n.a.	n.a.	1987	1987	None
33	ADM	n.a.	n.a.	n.a.	n.a.	1987	1987	1987
34	ADM	n.a.	n.a.	n.a.	n.a.	1987	1988	None

1. Improvement #10 consists of a series of taxiway improvements identified in Appendix B.
- n. Construction of Satellite 1 and International Terminal. The need for this experiment will be reviewed by the Task Force after consideration of future airline terminal locations.
- o. Remote parking for 20 aircraft at west end of Airport.
- p. Additional experiment may be needed to test value of dual taxiway system around Satellite 4 during tunnel construction!

## ATTACHMENT B

SIMULATION MODEL  
CALIBRATION OUTPUT DATA

A. FLOW RATES	}	SEE HOURLY SUMMARY (TABLE 1) AND QUARTER HOUR FIGURES 1 TO 5
B. DELAYS		
C. TRAVEL TIMES		

Los Angeles International Airport

Los Angeles  
Airport Improvement Task Force Delay Studies

Table 1

Hourly Comparison of Output Data  
for Simulation Model Calibration

Time	Arrival Flow Rate <u>Data Model (S.D.)</u>		Departure Flow Rate <u>Data Model (S.D.)</u>	
1800-1900	50	48.5 (0.52)	51	49.8 (0.63)
1900-2000	34	33.5 (0.52)	53	54.4 (1.17)
2000-2100	39	36.3 (0.82)	52	51.8 (1.22)

Time	Average Arrival Air Delay (minutes) <u>Data Model (S.D.)</u>		Average Fix to Threshold Travel Time (minutes) <u>Data Model (S.D.)</u>	
1800-1900	0.55	1.19 (0.42)	9.33	8.17 (0.42)
1900-2000	0.74	0.71 (0.07)	9.69	10.04 (0.95)
2000-2100	0.57	0.62 (0.09)	9.75	9.76 (0.96)

Time	Average Arrival Threshold to Gate Travel Time (minutes) <u>Data Model (S. D.)</u>		Average Departure Gate to Roll Travel Times (minutes) <u>Data Model (S. D.)</u>	
1800-1900	3.56	3.68 (0.14)	8.82	10.08 (1.01)
1900-2000	3.96	3.63 (0.13)	10.93	11.43 (1.11)
2000-2100	2.87	3.61 (0.20)	8.63	8.24 (0.46)

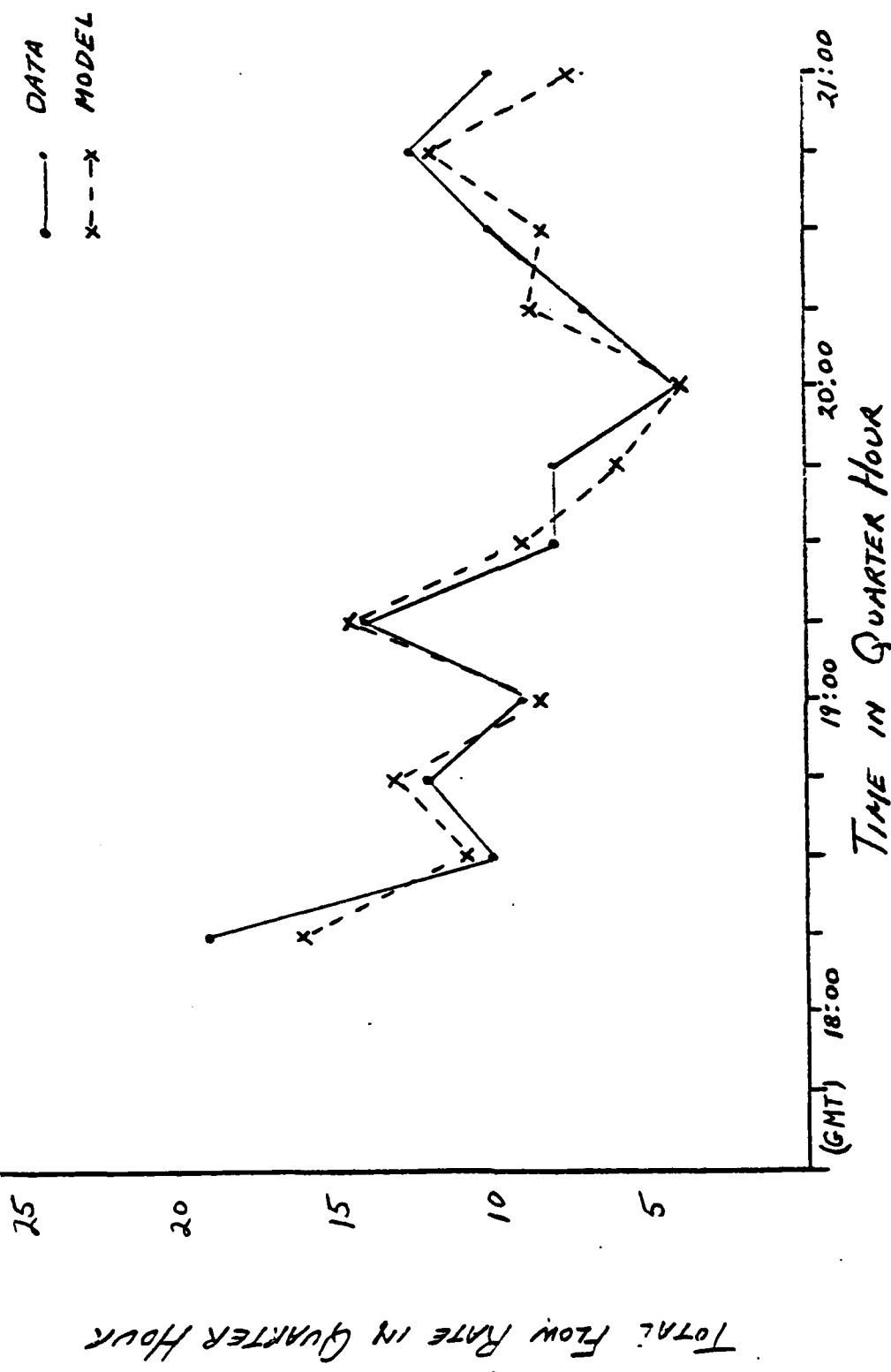


FIGURE 1 ARRIVAL FLOW RATE



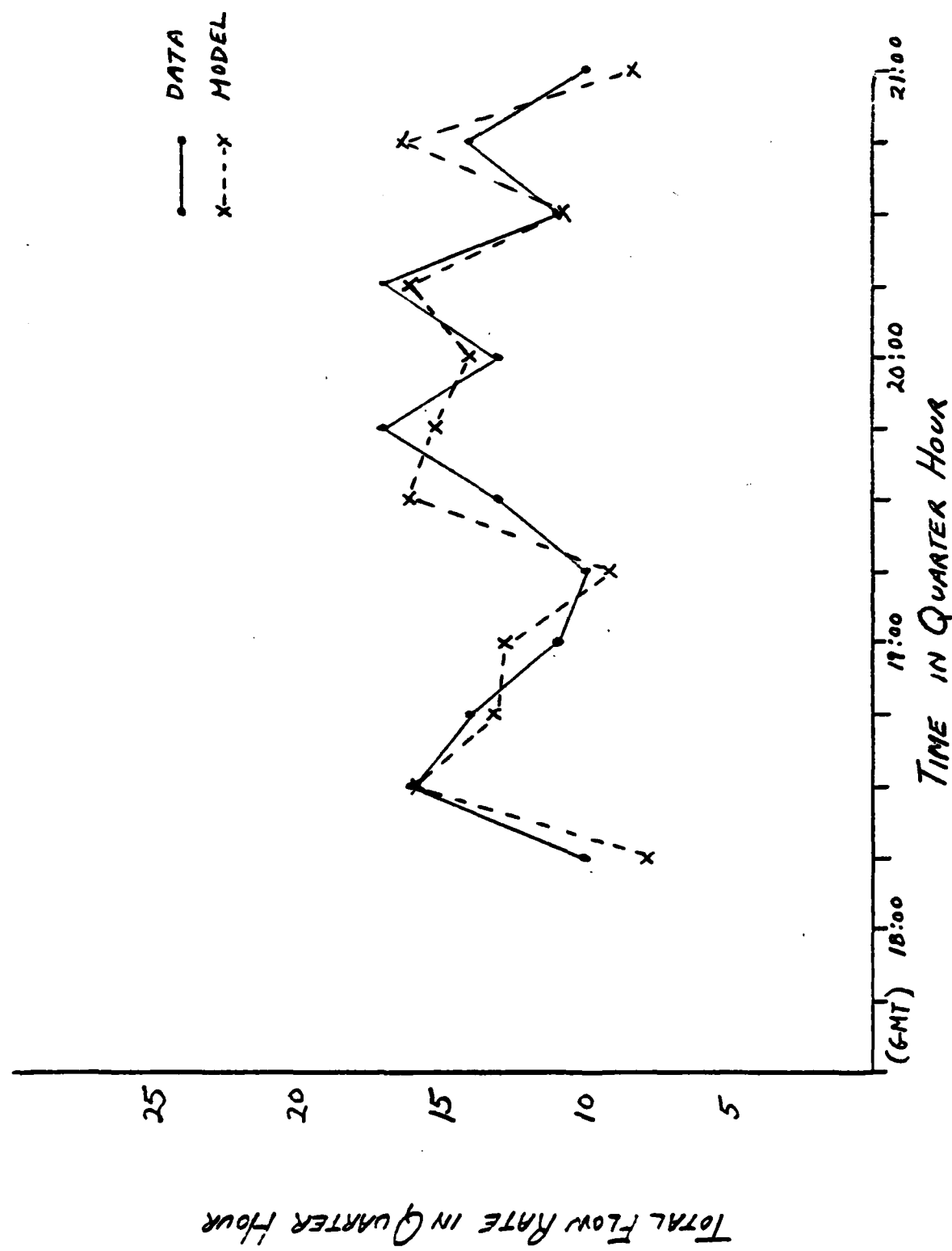


FIGURE 2 DEPARTURE FLOW RATE

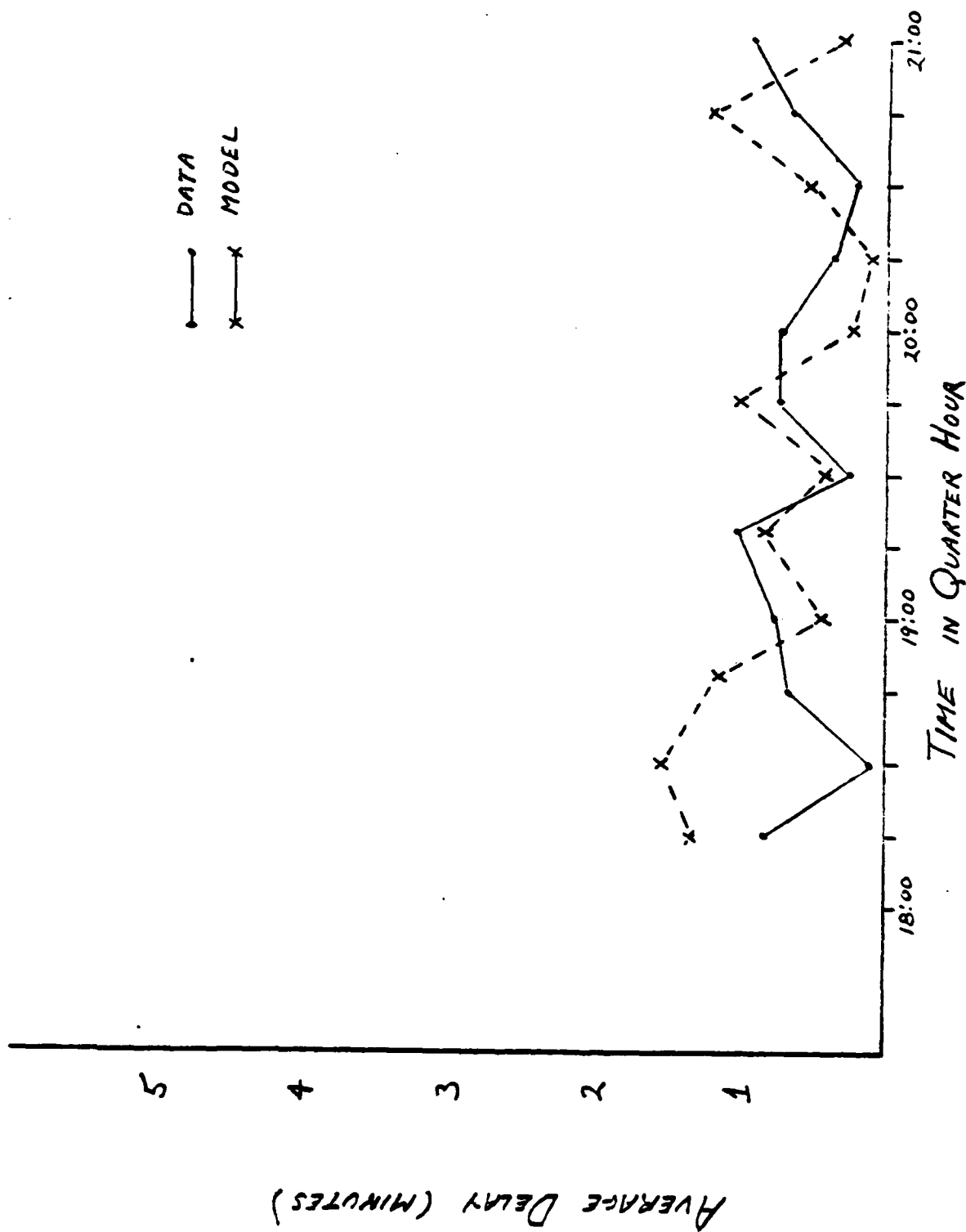


FIGURE 3 ARRIVAL DELAY

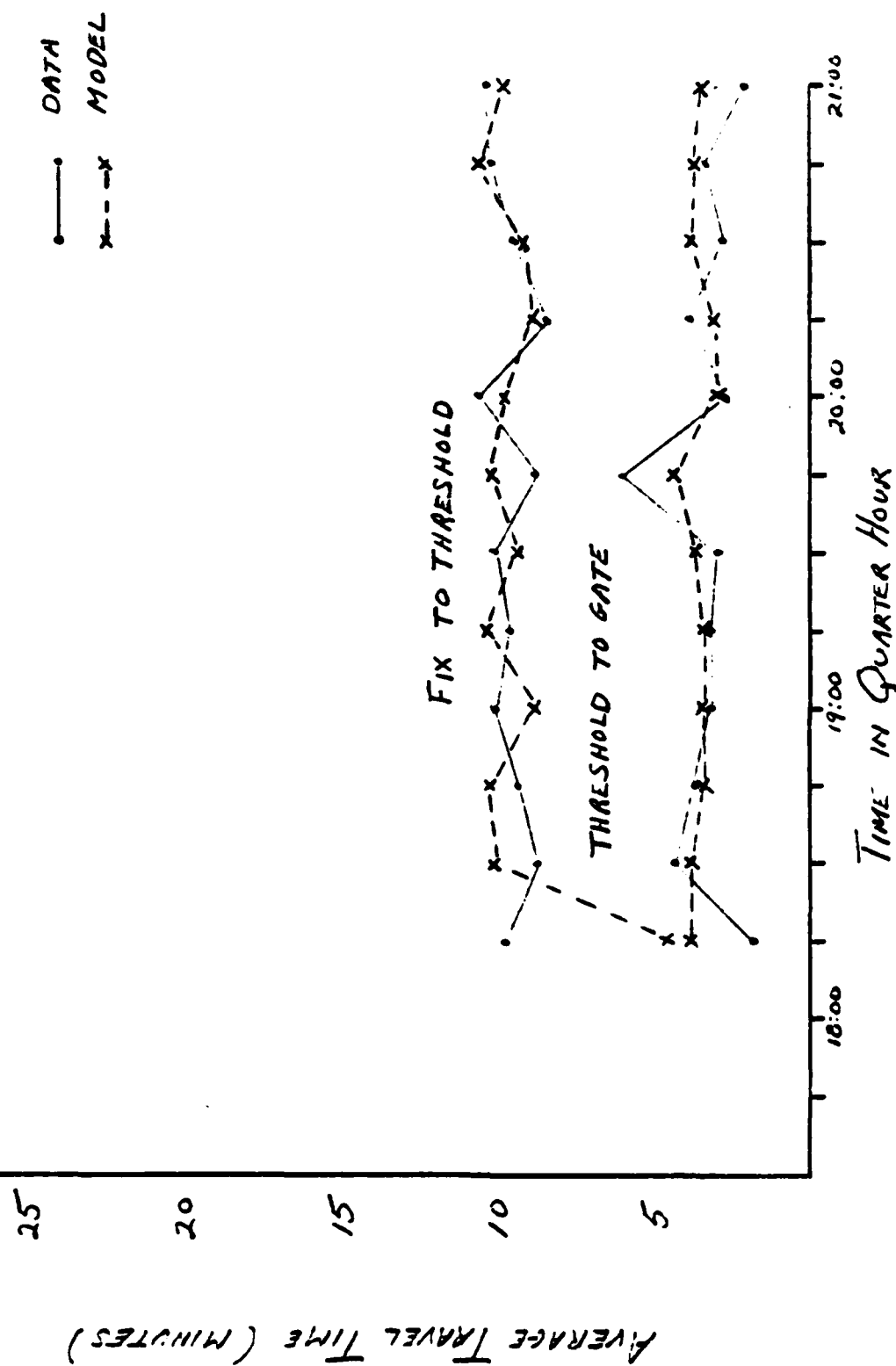


FIGURE 4 ARRIVAL TRAVEL TIME

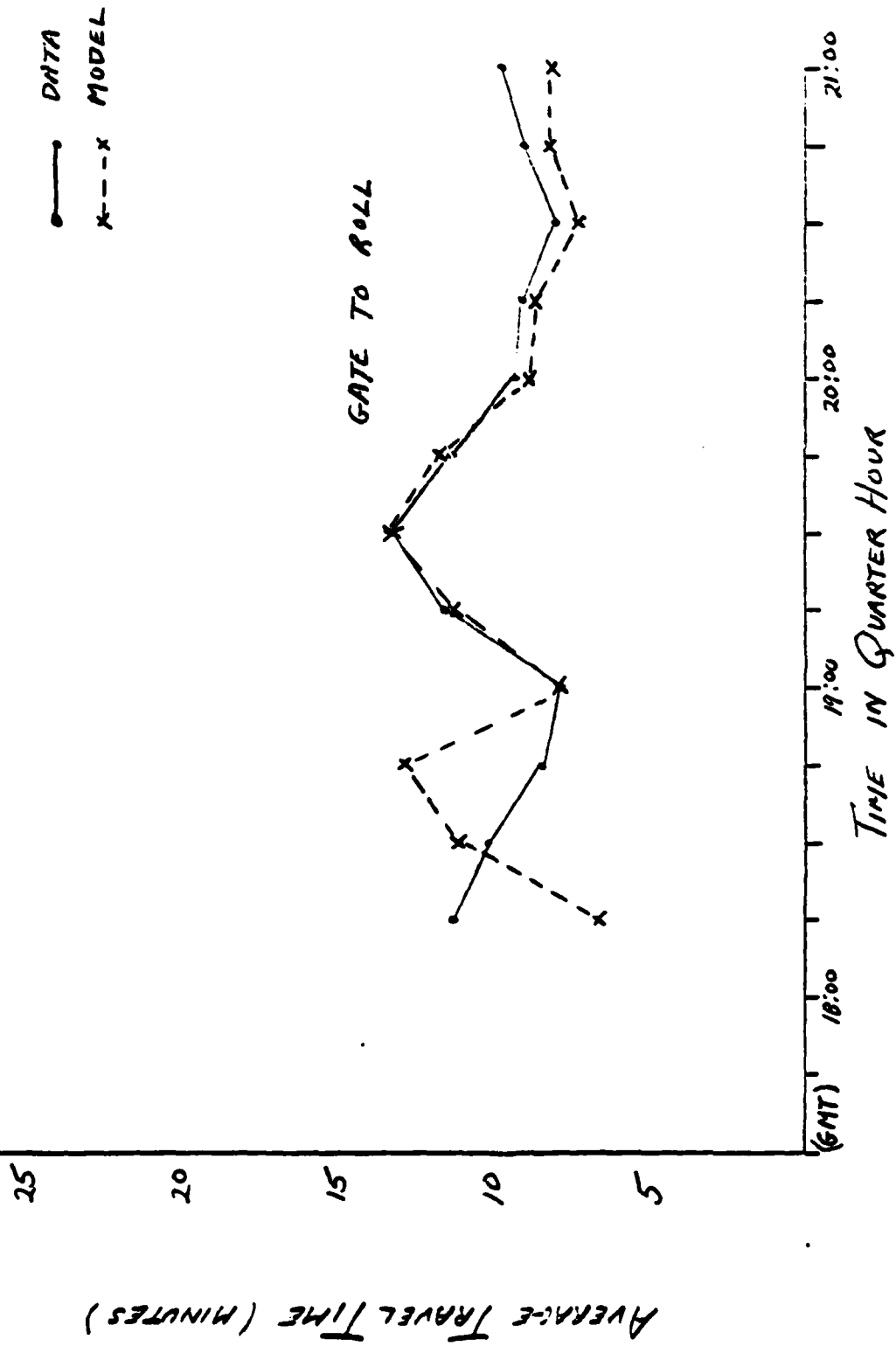


FIGURE 5 DEPARTURE TRAVEL TIME



[illegible][illegible][illegible]



LEAD A/C RUNWAY 0 LEAD A/C FIX 0 TRAIL A/C RUNWAY 0 TRAIL A/C FIX 0  
120 SEPARATION VALUES IN 4 SETS OF 32 A/A (N-MILES), D/A (N-MILES), D/D (MINUTES) AND A/D (MINUTES)

2.03	.70	2.70	.65	3.38	.60	3.38	.50
1.43	.70	1.43	.65	2.03	.60	2.03	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
.91	.25	.35	.25	.73	.24	.78	.24
.91	.25	.35	.25	.73	.24	.78	.24
.79	.25	.74	.24	.68	.23	.68	.23
.79	.25	.74	.24	.68	.23	.68	.23
1.50	.08	2.00	.08	2.00	.08	2.00	.08
1.00	.04	1.00	.06	.83	.08	.83	.08
.83	.04	.75	.05	.58	.08	.58	.08
.83	.04	.75	.05	.58	.08	.58	.08
.53	.16	.53	.16	.53	.16	.53	.16
.47	.19	.47	.19	.47	.19	.47	.19
.47	.19	.47	.19	.47	.19	.47	.19
.44	.09	.44	.09	.44	.09	.44	.09

LEAD A/C RUNWAY 1 LEAD A/C FIX 0 TRAIL A/C RUNWAY 1 TRAIL A/C FIX 0  
120 SEPARATION VALUES IN 4 SETS OF 32 A/A (N-MILES), D/A (N-MILES), D/D (MINUTES) AND A/D (MINUTES)

2.03	.70	2.70	.65	3.38	.60	3.38	.50
1.43	.70	1.43	.65	2.03	.60	2.03	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
.91	.25	.35	.25	.73	.24	.78	.24
.91	.25	.35	.25	.73	.24	.78	.24
.79	.25	.74	.24	.68	.23	.68	.23
.79	.25	.74	.24	.68	.23	.68	.23
1.50	.08	2.00	.08	2.00	.08	2.00	.08
1.00	.04	1.00	.06	.83	.08	.83	.08
.83	.04	.75	.05	.58	.08	.58	.08
.83	.04	.75	.05	.58	.08	.58	.08
.53	.16	.53	.16	.53	.16	.53	.16
.47	.19	.47	.19	.47	.19	.47	.19
.47	.19	.47	.19	.47	.19	.47	.19
.44	.09	.44	.09	.44	.09	.44	.09

LEAD A/C RUNWAY 2 LEAD A/C FIX 0 TRAIL A/C RUNWAY 2 TRAIL A/C FIX 0  
120 SEPARATION VALUES IN 4 SETS OF 32 A/A (N-MILES), D/A (N-MILES), D/D (MINUTES) AND A/D (MINUTES)

2.03	.70	2.70	.65	3.38	.60	3.38	.50
1.43	.70	1.43	.65	2.03	.60	2.03	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
.91	.25	.35	.25	.73	.24	.78	.24
.91	.25	.35	.25	.73	.24	.78	.24
.79	.25	.74	.24	.68	.23	.68	.23
.79	.25	.74	.24	.68	.23	.68	.23
1.50	.08	2.00	.08	2.00	.08	2.00	.08
1.00	.04	1.00	.06	.83	.08	.83	.08
.83	.04	.75	.05	.58	.08	.58	.08
.83	.04	.75	.05	.58	.08	.58	.08
.53	.16	.53	.16	.53	.16	.53	.16
.47	.19	.47	.19	.47	.19	.47	.19
.47	.19	.47	.19	.47	.19	.47	.19
.44	.09	.44	.09	.44	.09	.44	.09



LEAD A/C RUNWAY 3 LEAD A/C FIX 0 TRAIL A/C RUNWAY 4 TRAIL A/C FIX 0  
120 SEPARATION VALUES IN 4 SETS OF 32, 4/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

2.03	.70	2.70	.65	3.38	.60	3.38	.50
1.43	.70	1.43	.65	2.03	.50	2.03	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
.91	.26	.85	.25	.78	.24	.78	.24
.91	.26	.85	.25	.78	.24	.78	.24
.79	.25	.74	.24	.68	.23	.68	.23
.79	.25	.74	.24	.68	.23	.68	.23
1.50	.08	2.00	.08	2.00	.08	2.00	.08
1.00	.08	1.00	.08	.83	.08	.83	.08
.83	.08	.75	.08	.58	.08	.58	.08
.83	.08	.75	.08	.58	.08	.58	.08
.53	.16	.51	.16	.53	.16	.53	.16
.57	.19	.47	.19	.47	.19	.47	.19
.47	.19	.47	.19	.47	.19	.47	.19
.44	.09	.44	.09	.44	.09	.44	.09

LEAD A/C RUNWAY 3 LEAD A/C FIX 0 TRAIL A/C RUNWAY 3 TRAIL A/C FIX 0  
120 SEPARATION VALUES IN 4 SETS OF 32, 4/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

2.03	.70	2.70	.65	3.38	.60	3.38	.50
1.43	.70	1.43	.65	2.03	.60	2.03	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
1.43	.70	1.43	.65	1.43	.60	1.43	.50
.91	.26	.85	.25	.78	.24	.78	.24
.91	.26	.85	.25	.78	.24	.78	.24
.79	.25	.74	.24	.68	.23	.68	.23
.79	.25	.74	.24	.68	.23	.68	.23
1.50	.08	2.00	.08	2.00	.08	2.00	.08
1.00	.08	1.00	.08	.83	.08	.83	.08
.83	.08	.75	.08	.58	.08	.58	.08
.83	.08	.75	.08	.58	.08	.58	.08
.53	.16	.51	.16	.53	.16	.53	.16
.57	.19	.47	.19	.47	.19	.47	.19
.47	.19	.47	.19	.47	.19	.47	.19
.44	.09	.44	.09	.44	.09	.44	.09

VECTING DELAY INPUTS

FIX DELAY EVALUATION LEVEL HOLDING PCT. MAXIMUM VECTING DELAY MINIMUM HOLDING DELAY

FIX TRAVEL TIME			FIX TO R/A DIST.		AVERAGE SPEED
PURWAY	CLASS				
1	1		28.50		204.00
1	1		28.50		191.30
1	1		28.50		160.00
1	1		28.50		180.00
1	2		27.00		192.00
1	2		27.00		192.00
1	2		27.00		186.00
1	2		27.00		186.00
1	3		27.00		192.00
1	3		27.00		192.00
1	3		27.00		192.00
1	3		27.00		180.00
1	4		27.00		192.00
1	4		27.00		192.00
1	4		27.00		180.00
1	4		27.00		180.00
2	1		28.50		191.30
2	1		28.50		191.30
2	1		28.50		180.00
2	2		25.50		192.90
2	2		25.50		192.90
2	2		25.50		180.00
2	2		28.50		180.00
2	3		24.00		210.00
2	3		24.00		180.00
2	3		24.00		180.00
2	3		24.00		180.00
2	4		21.00		180.00
2	4		21.00		180.00
2	4		21.00		180.00
2	4		21.00		180.00
3	1		31.50		180.00
3	1		31.50		180.00
3	1		31.50		180.00
3	1		31.50		180.00
3	2		31.50		180.00
3	2		34.50		180.00
3	2		34.50		180.00
3	2		34.50		180.00
3	3		39.00		180.00
3	3		39.00		180.00
3	3		39.00		180.00
3	3		39.00		180.00
3	4		21.00		180.00
3	4		21.00		180.00
3	4		21.00		180.00
3	4		21.00		180.00
4	1		39.00		180.00
4	1		39.00		180.00
4	1		39.00		180.00
4	2		36.00		180.00
4	2		36.00		180.00
4	2		36.00		180.00
4	2		36.00		180.00
4	3		37.50		180.00
4	3		37.50		180.00
4	3		37.50		180.00
4	3		37.50		180.00
4	4		19.50		180.00
4	4		19.50		180.00
4	4		19.50		180.00
4	4		19.50		180.00
5	1		21.00		180.00
5	1		21.00		180.00
5	1		21.00		180.00
5	1		21.00		180.00



ATTACHMENT C

RESULTS of LAX STAGE 1 DELAY EXPERIMENTS

LOS ANGELES INTERNATIONAL AIRPORT

LOS ANGELES

AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES

TABLE 3  
INDEX of STAGE 1 DELAY  
EXPERIMENTS SUMMARY OF RESULTS

<u>ITEM</u>	<u>TABLE</u>	<u>EXPERIMENT NO.</u>	<u>(TRAFFIC FLOW)</u>	<u>PAGE</u>
1	4	1	(Westerly)	22
2	5	7	"	25
3	6	7A	"	27
4	7	7B	"	28
5	8	11	"	30
6	9	11 (rerun)	"	32
7	10	13	"	34
8	11	2	"	38
9	12	2 (modified demand)	"	39
10	13	3	"	41
11	14	8	"	43
12	15	8A	"	44
13	16	8B	"	45
14	17	12	"	47
15	18	4	(Night Time)	55

LAX - STAGE 1EXPERIMENT NO. 1Objective:

To obtain baseline delay estimates for the following runway configuration in VFR-1 for 1978 demand.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Calibration was performed using this configuration ("A")

Experiment 7 uses configuration "A" with 1982 demand.

TABLE 4

## SUMMARY OF RESULTS

EXPERIMENT NO. **1**

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME			
	ARRIVALS							DEPARTURES							FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.				
7-8	10.0	2.0	8.0	10.0	30.0	29	+1.0	4.0	16.0	13.0	8.0	41.0	48	-7.0	9.5	4.0	7.7	
8-9	11.0	3.0	14.0	10.0	38.0	39	-1.0	2.2	29.2	18.5	8.0	57.9	64	-6.1	10.4	4.3	11.6	
9-10	8.0	2.0	12.3	16.1	38.4	40	-1.6	4.5	26.3	22.4	3.4	56.6	52	14.6	9.9	4.3	18.7	
10-11	11.0	1.0	14.7	22.9	49.6	50	-0.4	3.5	19.8	19.8	8.3	49.0	48	+1.0	10.3	4.4	15.1	
11-12	14.0	5.0	9.4	32.3	60.7	59	+1.7	7.8	13.1	13.1	12.1	48.8	52	-3.2	14.3	4.5	9.8	
12-13	9.0	2.0	11.6	23.6	46.2	45	+1.2	4.0	12.8	12.8	15.7	55.7	65	-9.6	14.5	4.6	19.1	
13-14	10.0	1.0	14.4	16.0	41.4	42	-0.6	3.0	18.7	18.7	16.2	59.2	51	+8.2	10.7	4.4	21.8	
14-15	7.0	3.0	12.5	21.6	44.1	47	-2.9	9.0	19.2	19.2	5.9	43.4	39	-14.4	11.9	4.4	10.8	
TIME	ARRIVAL DELAYS							DEPARTURE DELAYS							GRAND TOTAL			
	AVERAGE							AVERAGE							TOTAL			
7-8	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY	
8-9	0.3	0.1	0.1	0.1	0.2	0.4	0.1	0.7	1.5	0.9	1.5	1.3	0.0	0.3	0.0	0.7	1.6	
9-10	0.7	0.1	0.3	0.4	0.9	0.1	0.0	1.8	5.5	6.3	4.0	5.7	0.0	0.1	0.0	0.5	5.5	
10-11	0.2	0.0	0.4	1.0	0.6	0.0	0.1	1.6	12.2	12.3	2.0	10.6	0.0	0.2	0.2	0.7	11.0	
11-12	0.2	0.0	0.8	1.9	1.2	0.1	0.1	0.9	2.9	10.0	3.7	5.9	0.0	0.3	0.1	1.4	6.3	
12-13	0.1	0.0	0.9	2.9	3.9	0.1	0.1	1.3	1.5	2.6	9.6	3.8	0.0	0.2	0.0	5.1	4.0	
13-14	0.6	1.2	0.1	1.7	1.1	0.1	0.1	2.7	3.2	13.3	10.3	7.5	0.0	0.5	0.1	5.5	8.1	
14-15	0.2	0.0	1.2	1.4	2.5	0.1	0.0	1.9	3.6	21.8	15.8	12.7	0.0	1.0	0.3	1.3	14.0	
								0.4	0.4	8.5	1.9	4.2	0.0	0.3	0.5	2.6	5.0	

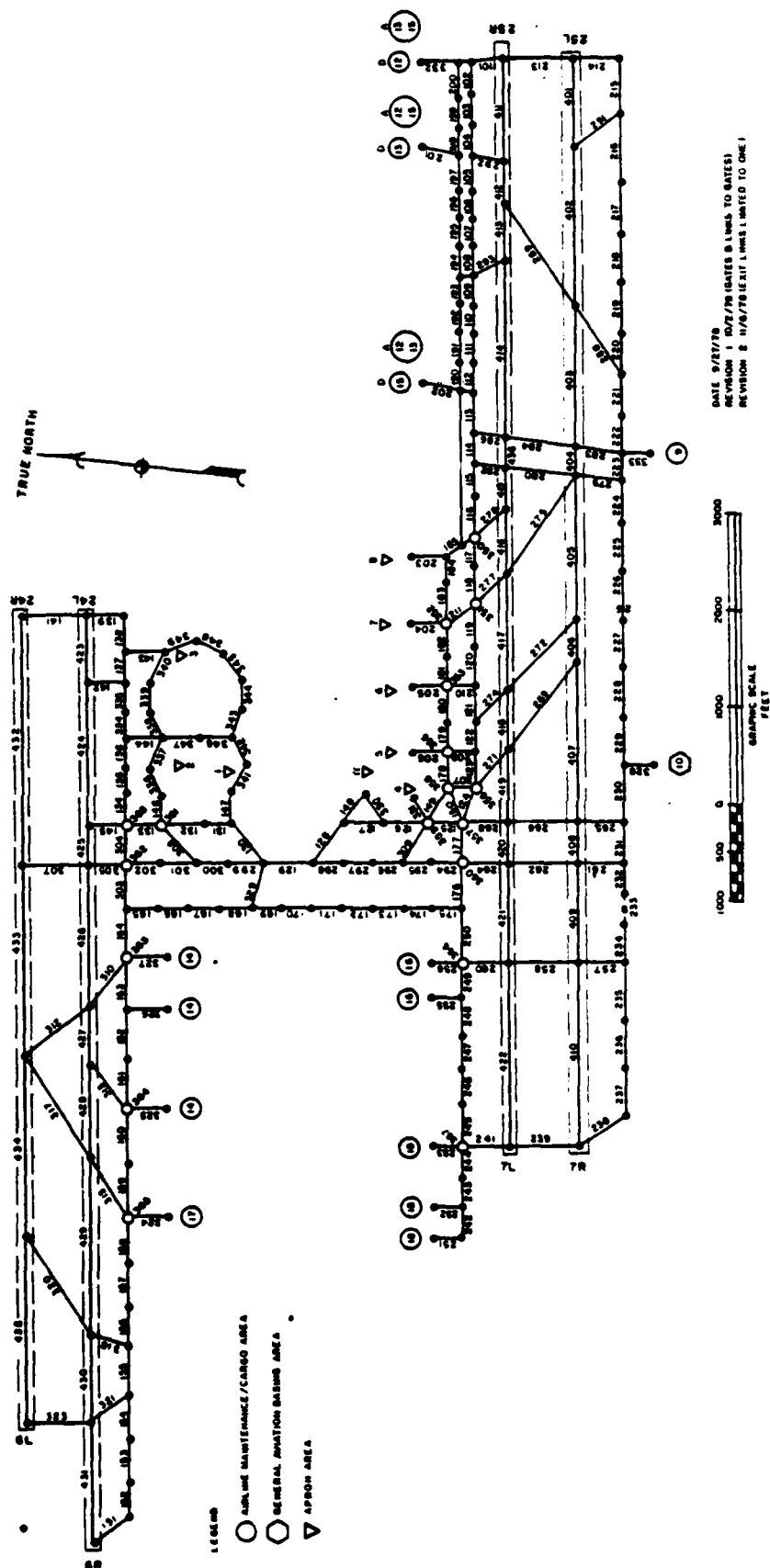


Figure 6 LAX LINK NODE DIAGRAM (PRESENT)



LAX - STAGE 1EXPERIMENT NO. 7 (7A)(7B)Objective:

To obtain baseline delay estimates for the following runway configurations in VFR 1 for 1982 demand. (+5%)(+15%)

To obtain delay estimates for 1982 with no improvements to the airport.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Experiment 11 is similar with an improved ATC system scenario (1982) and the 1982 near-term improvements.

Prior Experiment 1 is similar for the 1978 demand.

TABLE 5

## SUMMARY OF RESULTS

EXPERIMENT NO. 7

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME			
	ARRIVALS							DEPARTURES							FIX TO THRESH	THRESH TO GATE	GATE TO ROLL	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.				
7-8	2.0	1.0	6.0	18.0	27.0	25	+2.0	2.0	16.0	14.8	8.0	40.0	48	-8.0	9.7	4.5	7.4	
8-9	10.0	1.0	14.0	19.0	44.0	45	-1.0	6.1	24.8	19.4	7.5	57.8	64	-6.2	16.5	4.4	17.2	
9-10	6.0	1.0	15.0	18.0	40.0	41	-1.0	5.0	28.9	18.2	6.3	58.4	54	+1.4	10.8	4.3	16.9	
10-11	11.0	3.0	13.2	25.7	52.9	53	-0.1	7.9	21.3	17.0	5.2	51.4	48	+3.4	11.4	4.7	13.1	
11-12	11.6	2.8	23.0	21.1	58.5	62	-3.5	4.8	15.9	15.3	9.2	45.2	52	-6.8	11.9	4.6	9.0	
12-13	10.8	0.9	10.0	21.2	42.9	44	-1.1	3.6	24.3	19.1	13.1	60.1	65	-4.9	12.1	4.7	15.1	
13-14	7.2	1.8	9.0	18.2	36.2	40	-3.8	4.5	21.9	12.9	12.9	52.2	54	-1.8	10.0	4.2	13.0	
14-15	9.0	4.5	11.7	21.5	46.7	53	-6.3	4.5	11.6	12.2	10.5	38.8	41	-2.2	10.3	4.2	7.8	
GRAND TOTAL																		
TIME	AVERAGE DELAYS														AVERAGE			
	ARRIVAL DELAYS							DEPARTURE DELAYS							TAXI-OUT	RWY CROSS	RWY CONG.	ARR. DELAY
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT				
7-8	0.0	0.0	1.6	0.6	2.3	0.1	0.1	0.4	0.9	2.4	1.6	4.6	0.0	0.0	0.0	0.0	2.5	1.6
8-9	0.5	0.2	0.9	1.2	0.9	0.1	0.1	2.5	3.5	13.3	6.1	6.6	0.0	0.2	0.1	1.1	6.9	
9-10	0.0	0.0	1.3	2.0	1.4	0.2	0.1	1.7	10.6	9.7	6.1	9.1	0.0	0.7	0.1	1.7	4.6	
10-11	0.5	0.7	0.9	2.8	1.7	0.1	0.0	2.5	6.7	4.4	5.5	5.3	0.0	0.7	0.0	1.8	5.7	
11-12	0.1	0.5	3.0	2.9	2.3	0.1	0.1	1.6	1.0	5.5	3.4	3.1	0.0	0.1	0.0	2.5	3.2	
12-13	0.7	0.0	1.2	5.3	3.0	0.1	0.0	0.8	5.3	13.2	6.1	7.8	0.0	0.5	0.0	3.1	3.3	
13-14	0.2	0.0	1.2	1.1	0.9	0.1	0.1	1.5	5.7	5.5	8.9	6.1	0.0	0.0	0.0	1.1	6.7	
14-15	0.1	0.0	1.6	1.4	1.1	0.2	0.0	0.5	1.2	2.9	13.9	3.2	0.0	0.2	0.0	1.3	2.4	

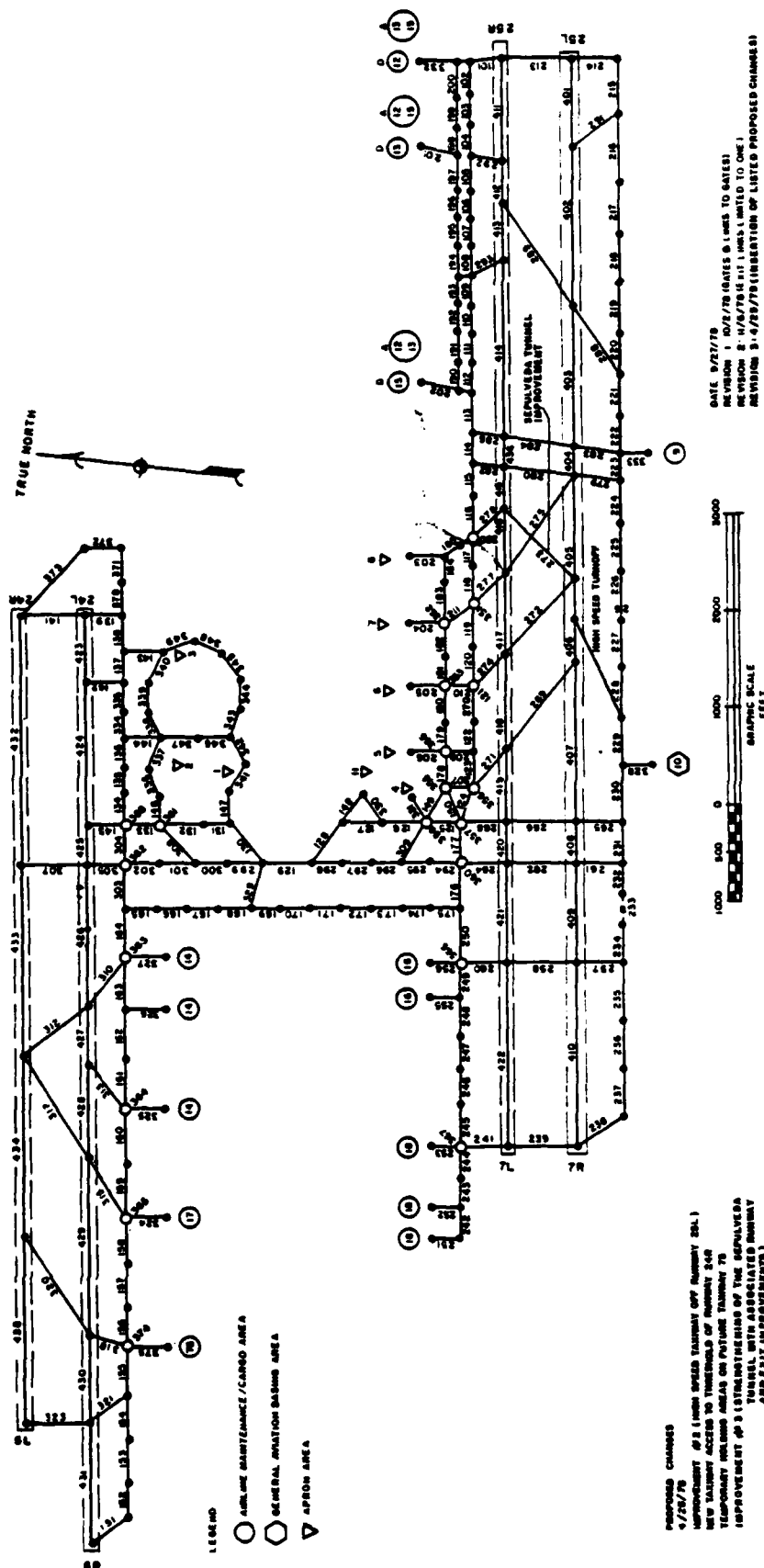


TABLE 6

## SUMMARY OF RESULTS

EXPERIMENT NO. 7A

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME			
	ARRIVALS							DEPARTURES							FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.				
7-8	4.0	3.0	9.0	13.0	28.0	26	+2.0	5.0	19.0	15.0	5.0	49.0	57	-6.0	10.1	4.0	7.4	
8-9	8.0	2.0	11.0	24.0	45.4	47	-1.6	4.0	23.6	18.8	8.1	54.5	67	-2.5	11.0	4.1	12.7	
9-10	8.0	2.0	19.5	12.6	42.1	43	-0.9	4.9	27.5	17.0	9.8	59.2	57	+2.3	12.4	4.4	20.3	
10-11	13.0	2.0	10.2	27.8	53.0	56	-3.0	4.1	18.3	19.9	10.8	53.1	50	+3.1	13.0	4.4	20.2	
11-12	11.0	3.0	22.2	22.0	63.2	65	-1.8	6.6	20.0	15.3	7.6	49.5	55	-5.5	14.4	4.8	13.5	
12-13	10.0	1.0	12.9	23.9	46.8	46	+0.8	5.3	27.4	14.6	12.9	60.2	68	-7.8	19.2	4.4	19.3	
13-14	8.0	2.0	13.2	23.0	45.2	42	+3.2	4.1	27.0	17.0	10.3	58.4	57	+1.4	13.6	4.6	24.1	
14-15	14.0	3.0	11.0	26.3	54.3	55	-0.7	8.0	15.0	22.1	11.5	51.6	43	+13.6	13.0	4.8	24.3	
	ARRIVAL DELAYS							DEPARTURE DELAYS							GRAND TOTAL			
	AVERAGE							AVERAGE							TOTAL			
TIME	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY	
7-8	0.0	0.0	0.5	1.5	0.7	0.1	0.1	0.4	1.7	0.2	2.0	1.3	0.0	0.1	0.0	1.1	1.4	
8-9	0.1	0.1	0.8	2.9	1.8	0.1	0.1	1.6	2.8	9.3	7.3	5.6	0.0	0.3	0.0	2.0	5.9	
9-10	0.2	0.0	3.6	2.0	2.3	0.1	0.1	4.5	11.5	17.2	6.7	11.6	0.0	0.6	0.3	2.5	12.5	
10-11	0.5	0.0	0.9	6.3	3.5	0.1	0.0	2.9	9.9	13.0	11.2	11.0	0.0	0.5	0.6	3.6	12.1	
11-12	0.3	0.0	4.0	8.6	5.2	0.1	0.1	1.2	2.5	11.4	9.5	6.2	0.0	0.4	0.0	5.4	6.6	
12-13	0.2	0.0	2.3	19.0	9.9	0.1	0.1	3.0	7.8	21.1	12.7	11.6	0.0	0.8	0.7	10.1	13.1	
13-14	0.3	0.0	0.8	8.6	4.5	0.1	0.2	3.2	6.3	31.0	10.0	13.8	0.0	0.5	0.7	4.8	15.0	
14-15	0.1	1.1	1.0	6.1	3.5	0.1	0.1	0.8	1.5	25.5	11.2	12.9	0.0	0.6	1.5	3.7	15.0	

TABLE 7

## SUMMARY OF RESULTS

EXPERIMENT NO. 76

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME			
	ARRIVALS					DEPARTURES					TIME							
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	FIX TO THRESH.	THRESH. TO GATE	GATE ROLL	
7-8	6.0	0.0	10.0	14.9	30.9	29	+1.9	3.0	19.6	15.2	10.0	47.8	53	-7.2	9.6	7.1	7.7	
8-9	10.7	3.0	14.9	19.8	48.4	51	-2.6	8.1	22.9	18.5	8.2	57.7	74	-16.3	11.1	7.8	15.4	
9-10	8.3	0.0	17.3	17.8	43.4	46	-2.6	5.1	29.6	16.6	5.1	57.2	62	-4.8	13.4	4.9	24.6	
10-11	11.0	4.0	17.5	23.2	55.7	61	-5.3	6.0	24.1	18.1	11.1	59.3	55	+4.3	15.0	4.8	37.5	
11-12	15.0	3.0	15.3	23.2	56.5	71	-4.5	3.0	23.6	16.6	14.1	57.3	60	-2.7	21.9	4.5	26.7	
12-13	6.0	3.0	15.0	22.8	46.8	50	-3.2	6.0	24.8	19.9	11.3	67.0	74	-7.0	36.2	4.6	23.5	
13-14	6.0	1.0	16.0	22.5	45.5	46	-0.5	4.0	25.4	16.5	8.4	54.3	62	-7.7	45.4	5.0	24.6	
14-15	17.0	6.0	14.0	22.9	59.9	60	-0.1	7.0	18.0	15.7	12.5	53.2	47	+6.2	34.9	6.2	32.6	
ARRIVAL DELAYS																		
AVERAGE																		
TIME	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY	
7-8	0.0	0.0	0.1	1.2	0.6	0.1	0.0	1.0	1.8	1.6	2.1	1.8	0.0	0.4	0.0	0.7	2.2	
8-9	0.2	0.0	0.3	1.0	0.4	0.1	0.1	6.1	8.8	8.9	7.3	8.1	0.0	0.4	0.0	0.6	8.5	
9-10	0.6	0.0	5.3	4.0	3.8	0.1	0.5	8.5	9.7	28.1	9.5	15.0	2.0	0.7	0.3	4.4	14.0	
10-11	0.3	0.3	1.2	28.9	12.3	0.1	0.4	2.1	8.3	37.5	9.4	16.9	0.0	0.9	1.3	4.0	17.1	
11-12	0.0	0.0	1.6	53.9	26.7	0.1	0.4	2.7	6.4	26.4	14.9	12.5	0.0	1.1	1.7	12.5	15.3	
13-14	0.5	0.0	1.9	70.8	35.7	0.1	0.6	7.5	2.7	23.8	15.6	13.8	0.0	1.3	1.8	27.2	15.7	
14-15	0.8	0.1	0.7	65.4	25.4	0.1	1.8	1.9	5.0	35.1	11.6	15.2	0.0	1.0	1.9	36.4	16.1	
GRAND TOTAL																		

LAX - STAGE 1EXPERIMENT NO. 11Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved ATC system scenario (1982) and the 1982 near-term improvements.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Experiment 13 is identical less improvements #2 (high-speed taxiway off runway 25L) and improvements #3 (strengthening of the Sepulverda tunnel).

Prior Experiment 7 is similar without the noted improvements and a 1978 ATC system scenario.

Prior Experiment 1 is similar without the noted improvements and a 1978 demand and a 1978 ATC system scenario.



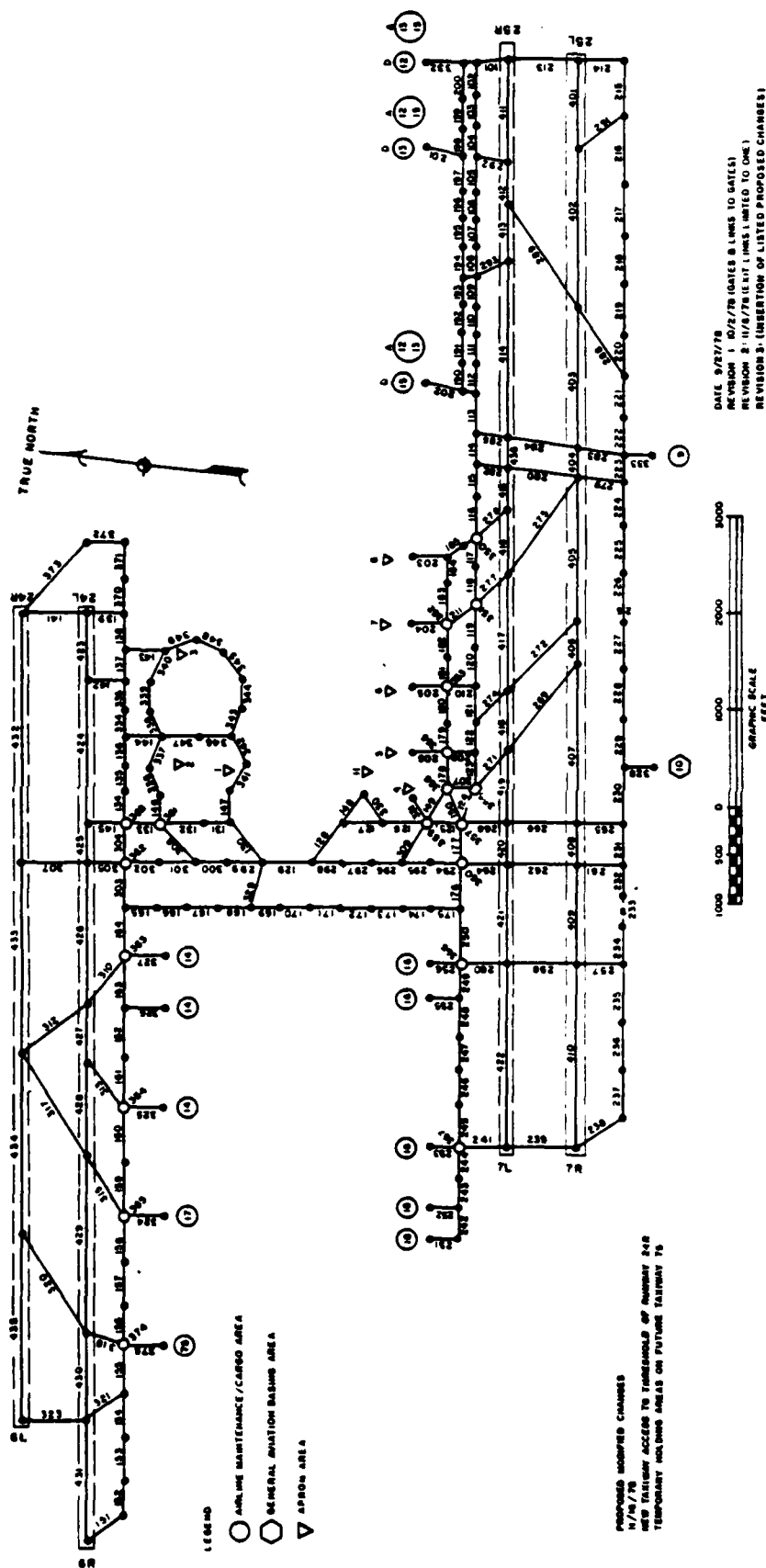


Figure 8 LAX LINK NODE DIAGRAM  
(24L BYPASS AND HOLDING AREA)



TABLE 9

## SUMMARY OF RESULTS

EXPERIMENT NO. 11 (REROUTED DEPARTURES  
FROM 25R TO 24R)

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME							
	ARRIVALS							DEPARTURES							TIME							
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	FIX TO THRESH.	THRESH. TO GATE	GATE TO ROLL					
7-8	2.0	1.0	6.0	17.9	26.9	25	+1.1	2.0	13.0	16.0	10.0	41.0	48	-7.0	9.8	4.3	6.4					
8-9	10.0	1.0	14.0	18.0	43.8	45	-1.2	13.4	14.0	18.4	10.7	56.5	64	-7.5	10.5	4.6	13.2					
9-10	6.0	1.0	15.0	18.3	40.3	41	-0.7	12.3	23.0	18.7	8.7	62.7	54	+8.7	11.4	4.3	14.7					
10-11	11.0	3.0	11.8	25.9	51.7	53	-1.3	7.2	11.0	17.4	11.8	47.4	48	-0.6	11.6	4.6	16.9					
11-12	11.3	2.6	23.2	18.7	55.8	62	-6.2	4.5	14.7	15.0	11.3	45.5	52	-6.5	13.7	4.6	9.7					
12-13	9.6	0.8	10.2	21.2	41.8	44	-3.2	14.1	14.2	13.4	11.2	52.9	65	-12.1	14.7	4.5	15.3					
13-14	6.4	1.6	8.0	16.9	32.9	40	-7.1	11.0	14.0	13.9	11.5	50.5	54	-3.4	10.0	4.1	13.2					
14-15	8.0	4.0	10.4	19.5	41.9	53	-11.1	5.1	5.7	17.7	7.0	35.2	41	-5.8	10.4	3.8	8.4					
TIME	ARRIVAL DELAYS														DEPARTURE DELAYS				GRAND TOTAL			
	AVERAGE														AVERAGE				TOTAL			
7-8	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY					
8-9	0.3	0.4	0.9	1.2	0.9	0.3	0.1	0.0	0.2	1.7	1.6	1.1	0.0	0.3	0.0	1.3	1.4					
9-10	0.0	0.0	1.7	2.9	2.0	0.4	0.1	3.3	0.5	10.5	7.8	5.7	0.1	1.9	0.0	1.4	7.7					
10-11	0.5	0.4	1.1	3.1	2.0	0.3	0.1	13.3	4.1	6.7	6.7	7.1	0.0	1.7	0.0	2.5	8.8					
11-12	0.1	0.4	4.8	6.0	4.0	0.4	0.2	2.6	0.7	7.0	4.6	4.6	0.0	1.9	0.0	2.4	6.5					
12-13	0.3	0.0	4.2	8.0	5.7	0.3	0.1	8.0	2.0	13.7	9.2	8.3	0.0	1.8	0.0	4.6	4.4					
13-14	0.2	0.0	1.3	1.2	1.0	0.3	0.2	12.1	2.7	8.2	4.5	6.6	0.1	1.2	0.0	6.1	10.1					
14-15	0.2	0.1	2.3	1.3	1.2	0.3	0.1	1.7	0.2	4.2	2.8	3.1	0.1	0.5	0.0	1.5	7.8					

LAX - STAGE 13EXPERIMENT NO. 13Objective:

To assess the delay impact to aircraft in 1982 for the following runway configuration in VFR 1 with an improved(1982) ATC system scenario and the 1982 near-term improvement less improvement #2 and #3.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Prior Experiment 11 is similar except improvements #2 and #3 are included in run.

TABLE 10

SUMMARY OF RESULTS  
EXPERIMENT NO. 13

TIME	AVERAGE FLOW RATES												AVERAGE TRAVEL TIME			
	ARRIVALS						DEPARTURES						FIX TO THRESH	THRESH TO GATE	GATE TO ROLL	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	TOTAL	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	TOTAL	DE-MAND	DIFF.		
7-8	2.0	1.0	6.0	18.0	27.0	25	+2.0	2.0	16.0	14.8	7.8	40.6	48	-7.4	9.8	4.4
8-9	10.0	1.0	13.9	19.0	43.9	45	-1.1	6.2	24.8	19.4	8.0	58.4	64	-5.6	10.5	4.6
9-10	6.0	1.0	15.1	17.9	40.0	41	-1.0	4.9	24.8	17.7	6.1	58.5	54	+4.5	11.5	4.4
10-11	11.0	3.0	11.9	25.9	51.8	53	-1.2	7.9	20.3	17.4	5.1	50.6	48	+1.4	11.5	4.7
11-12	12.0	3.0	23.3	18.7	57.0	62	-5.0	5.0	17.1	14.7	9.2	46.0	52	-6.0	13.7	4.6
12-13	12.0	1.0	11.8	24.6	49.4	44	+5.4	3.3	26.4	18.0	11.2	58.9	65	-6.1	15.6	4.7
13-14	8.0	2.0	9.6	20.6	40.2	40	+0.2	5.7	23.7	14.6	14.5	58.5	54	+4.5	11.2	4.6
14-15	10.0	5.0	13.4	24.3	52.7	53	-0.3	5.3	12.7	15.5	11.8	45.3	41	+4.5	11.1	4.6
	AVERAGE DELAYS												GRAND TOTAL			
TIME	ARRIVALS						DEPARTURES						RWY CONG.	ARR. DELAY	DEP. DELAY	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	TOTAL	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	TOTAL				
7-8	0.0	0.0	2.5	0.5	0.9	0.3	0.2	0.5	0.8	1.9	2.1	1.5	0.0	1.4	1.8	
8-9	0.3	0.7	1.2	1.2	1.0	0.3	0.2	2.6	3.2	11.7	6.2	6.4	0.0	1.5	7.7	
9-10	0.0	0.0	1.9	3.2	2.1	0.5	0.1	2.5	9.7	10.1	7.5	8.9	0.3	2.7	10.8	
10-11	0.5	0.5	0.9	3.1	1.9	0.4	0.2	2.1	5.3	4.5	8.3	5.0	0.0	2.5	5.9	
11-12	0.1	0.5	5.3	5.6	4.1	0.4	0.2	1.5	1.2	6.7	2.4	3.2	0.0	4.7	3.5	
12-13	0.3	0.0	3.2	11.2	6.5	0.3	0.2	2.9	4.2	18.3	9.2	9.4	0.0	1.9	11.3	
13-14	0.2	0.0	2.1	2.9	3.0	0.3	0.1	1.6	6.9	13.0	15.5	9.5	0.0	2.4	12.4	
14-15	0.2	0.1	3.6	1.7	1.7	0.4	0.1	0.6	3.2	8.8	7.1	5.6	0.0	2.2	6.6	

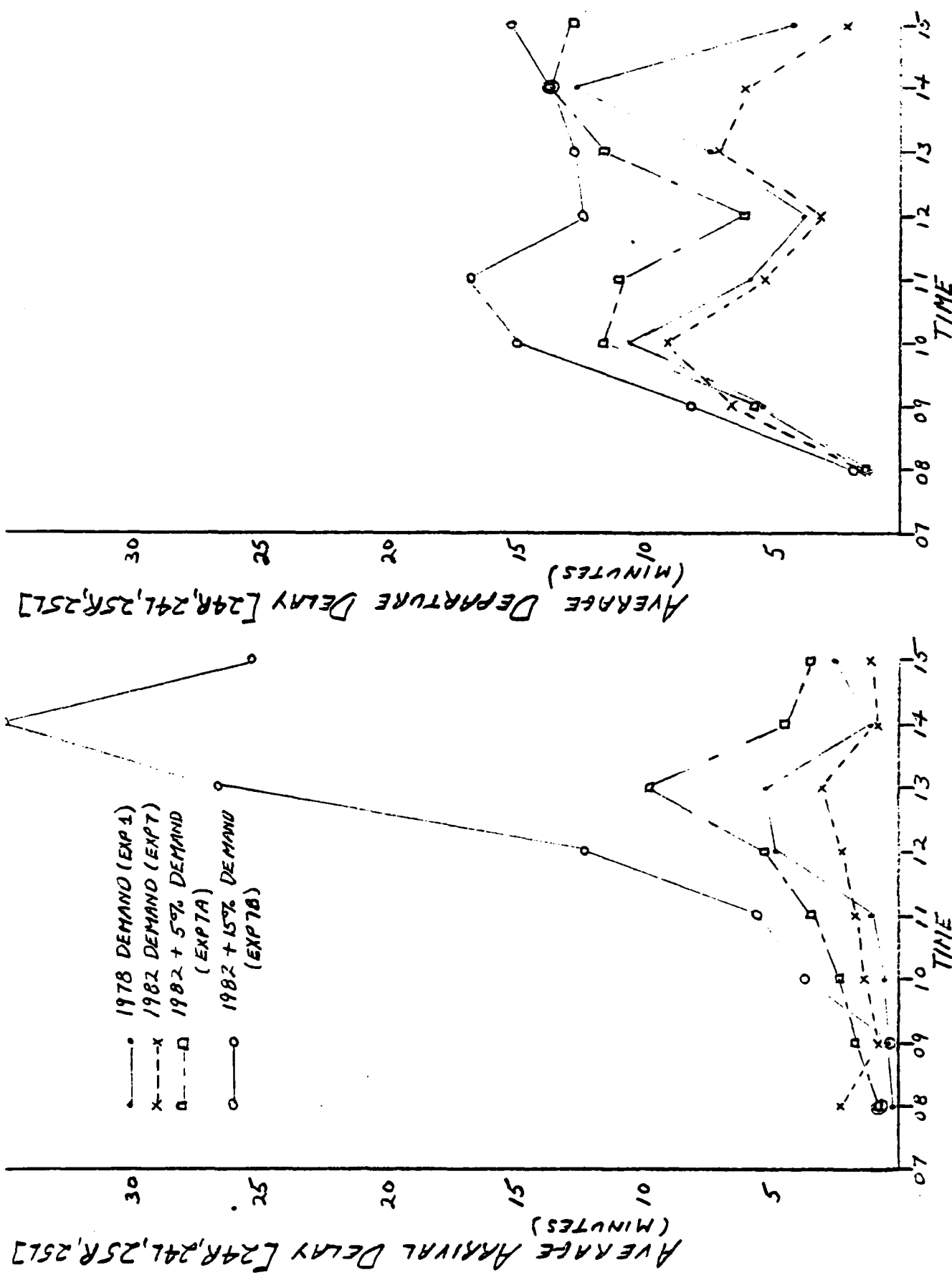


FIGURE 9 VFR (1978) COMPARISON - WESTERN FLOW

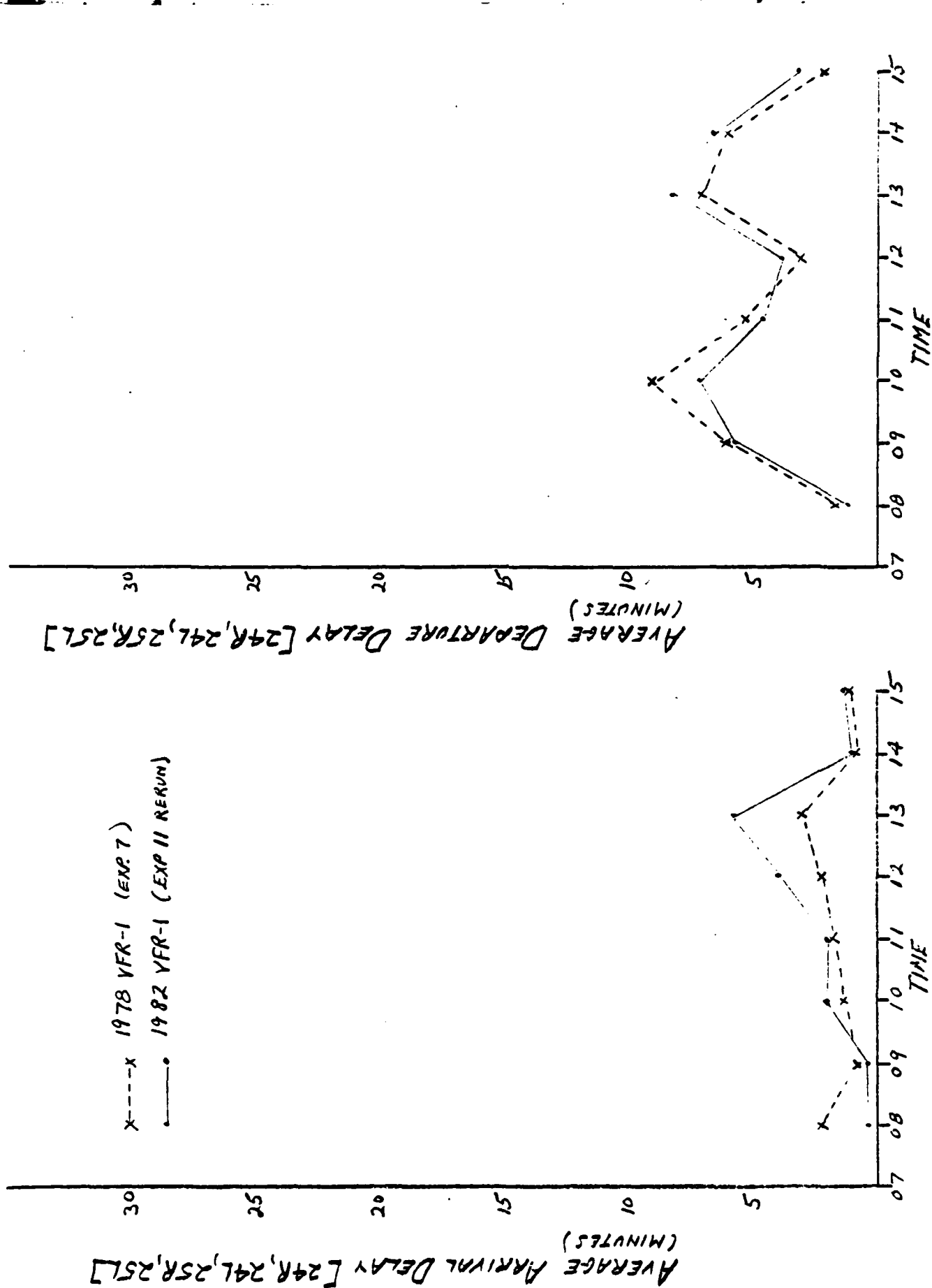


FIGURE 10 VFR (1978 AND 1982) COMPARISON WESTERLY FLOW

LAX - STAGE 1EXPERIMENT NO. 2Objective:

To obtain baseline delay estimates for the following runway configuration in IFR 1 for 1978 demand.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Experiment 8 is identical except for a 1982 demand. Experiment 3 is similar with IFR 2 weather conditions ( restriction on arrival runway use ).

TABLE 11

## SUMMARY OF RESULTS

EXPERIMENT NO. 2

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME			
	ARRIVALS						DEPARTURES								FIX TO THRESH	THRESH TO GATE	GATE TO ROLL	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.				
7-8	12.0	0	0	18.0	30.0	29	+1.0	0	20.0	31.0	0	41.0	48	-7.0	9.9	4.3	7.5	
8-9	14.0	0	0	22.5	36.5	39	-3.5	0	21.4	26.7	0	56.1	64	-7.9	12.6	4.4	13.8	
9-10	10.0	0	0	26.1	36.1	40	-3.9	0	31.8	24.9	0	56.7	52	-11.7	14.3	4.1	14.7	
10-11	12.0	0	0	26.3	38.3	50	-11.7	0	20.3	27.4	0	47.7	48	-0.3	23.0	4.5	13.5	
11-12	18.9	0	0	27.1	46.0	59	-13.0	0	23.4	25.2	0	48.6	52	-3.4	30.9	4.6	8.4	
12-13	11.1	0	0	26.2	37.4	45	-7.6	0	22.9	30.7	0	53.6	65	-11.4	52.6	4.5	9.3	
13-14	11.0	0	0	24.3	35.3	42	-6.7	0	16.4	28.8	0	45.2	51	-5.6	67.3	4.6	10.3	
14-15	10.0	0	0	28.2	38.2	47	-8.8	0	22.2	20.7	0	42.9	39	+3.9	81.3	4.3	7.2	
TIME	ARRIVAL DELAYS						DEPARTURE DELAYS								GRAND TOTAL			
	AVERAGE						AVERAGE											
7-8	RWY 24R 0.6	RWY 24L 0	RWY 25R 0	RWY 25L 0.6	ALL RWY 0.6	RWY CROSS 0.0	TAXI-IN 0.1	RWY 24R 0	RWY 24L 0.9	RWY 25R 1.9	RWY 25L 0	ALL RWY 1.4	RWY CROSS 0.0	TAXI-OUT 0.1	RWY CONG. 0.0	ARR. DELAY 0.7	DEP. DELAY 1.5	
8-9	RWY 1.6	RWY 0	RWY 0	RWY 3.8	ALL RWY 3.0	RWY CROSS 0.0	TAXI-IN 0.0	RWY 0	RWY 8.4	RWY 7.0	RWY 0	ALL RWY 7.7	RWY CROSS 0.0	TAXI-OUT 0.0	RWY CONG. 0.1	ARR. DELAY 3.0	DEP. DELAY 1.5	
9-10	RWY 0.5	RWY 0	RWY 0	RWY 6.8	ALL RWY 5.0	RWY CROSS 0.0	TAXI-IN 0.0	RWY 0	RWY 13.0	RWY 12.1	RWY 0	ALL RWY 12.6	RWY CROSS 0.0	TAXI-OUT 0.1	RWY CONG. 0.3	ARR. DELAY 5.0	DEP. DELAY 13.2	
10-11	RWY 0.6	RWY 0	RWY 0	RWY 19.2	ALL RWY 13.4	RWY CROSS 0.1	TAXI-IN 0.0	RWY 0	RWY 5.0	RWY 8.5	RWY 0	ALL RWY 7.1	RWY CROSS 0.0	TAXI-OUT 0.0	RWY CONG. 0.3	ARR. DELAY 13.5	DEP. DELAY 7.4	
11-12	RWY 0.7	RWY 0	RWY 0	RWY 36.2	ALL RWY 21.6	RWY CROSS 0.0	TAXI-IN 0.0	RWY 0	RWY 2.0	RWY 3.6	RWY 0	ALL RWY 2.9	RWY CROSS 0.0	TAXI-OUT 0.0	RWY CONG. 0.0	ARR. DELAY 21.6	DEP. DELAY 7.4	
12-13	RWY 0.5	RWY 0	RWY 0	RWY 61.0	ALL RWY 43.0	RWY CROSS 0.0	TAXI-IN 0.0	RWY 0	RWY 3.1	RWY 3.7	RWY 0	ALL RWY 3.4	RWY CROSS 0.0	TAXI-OUT 0.0	RWY CONG. 0.0	ARR. DELAY 43.0	DEP. DELAY 3.4	
13-14	RWY 1.1	RWY 0	RWY 0	RWY 84.0	ALL RWY 58.2	RWY CROSS 0.0	TAXI-IN 0.0	RWY 0	RWY 1.4	RWY 7.9	RWY 0	ALL RWY 5.5	RWY CROSS 0.0	TAXI-OUT 0.0	RWY CONG. 0.0	ARR. DELAY 58.2	DEP. DELAY 3.4	
14-15	RWY 0.3	RWY 0	RWY 0	RWY 97.5	ALL RWY 72.0	RWY CROSS 0.0	TAXI-IN 0.0	RWY 0	RWY 1.1	RWY 1.5	RWY 0	ALL RWY 1.3	RWY CROSS 0.0	TAXI-OUT 0.0	RWY CONG. 0.0	ARR. DELAY 11.0	DEP. DELAY 1.3	

TABLE 12

## SUMMARY OF RESULTS

EXPERIMENT NO. 2 (MODIFIED DEMAND)

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME				
	ARRIVALS						DEPARTURES						TIME		THRESH. TO GATE	ROLL TO GATE			
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.			FIX TO THRESH.		
7-8	12.0	0	0	18.0	30.0	29	+1.0	0	20.0	21.0	0	41.0	48	-7.0	4.2	7.5			
8-9	18.0	0	0	18.5	36.5	39	-2.5	0	27.3	28.6	0	55.9	64	-8.1	4.6	13.9			
9-10	14.0	0	0	25.8	39.8	40	-0.2	0	29.1	27.6	0	53.7	52	+1.7	4.6	30.9			
10-11	17.9	0	0	26.9	44.8	50	-5.2	0	25.6	26.3	0	51.9	48	+3.9	4.5	17.6			
11-12	23.1	0	0	26.0	49.1	59	-9.9	0	24.9	26.9	0	51.8	52	-0.2	4.7	8.6			
12-13	24.8	0	0	25.3	50.1	45	+5.1	0	23.9	30.3	0	54.2	65	-10.8	4.8	13.0			
13-14	13.2	0	0	24.4	37.6	42	-4.4	0	24.2	31.8	0	56.0	51	+5.0	4.7	19.0			
14-15	20.3	0	0	26.9	47.2	47	+0.2	0	16.5	27.9	0	41.4	59	+2.4	4.7	7.7			
GRAND TOTAL																			
TIME	AVERAGE DELAYS														AVERAGE TRAVEL TIME				
	ARRIVAL DELAYS						DEPARTURE DELAYS						TIME		THRESH. TO GATE	ROLL TO GATE			
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI OUT			RWY CONG.	ARR. DELAY	DEP. DELAY
7-8	0.6	0	0	0.6	0.6	0.1	0.1	0	0.9	1.9	0	1.4	0.1	0.3	0.0	0.8	1.8		
8-9	3.7	0	0	1.8	2.7	0.2	0.1	0	9.9	5.6	0	7.6	0.0	0.3	0.1	3.0	4.0		
9-10	1.0	0	0	3.2	2.7	0.2	0.2	0	16.5	7.7	0	12.5	0.0	0.6	2.2	2.8	15.3		
10-11	0.8	0	0	4.6	6.2	0.2	0.1	0	11.5	7.0	0	9.3	0.0	0.4	1.9	1.5	11.6		
11-12	7.4	0	0	21.3	14.7	0.2	0.1	0	2.1	3.4	0	2.3	0.0	0.3	0.0	15.0	3.1		
12-13	16.2	0	0	29.8	23.1	0.2	0.1	0	7.3	7.2	0	7.2	0.0	0.2	0.0	23.4	7.4		
13-14	1.3	0	0	29.9	25.7	0.2	0.1	0	4.8	16.6	0	11.5	0.0	0.2	1.4	26.0	12.1		
14-15	2.4	0	0	39.3	23.4	0.2	0.1	0	1.0	2.4	0	1.6	0.0	0.2	0.1	23.7	2.1		



LAX - STAGE 1  
EXPERIMENT NO. 3

Objective:

To obtain baseline delay estimates for the following runway configuration in IFR 2 with 1978 demand.

ARRIVAL RUNWAYS

24R, 25L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Prior Experiment 2 is similar except for IFR 1 conditions.

TABLE 13

## SUMMARY OF RESULTS

EXPERIMENT NO. 3 (MODIFIED DEMAND)

AVERAGE FLOW RATES																	
TIME	ARRIVALS							DEPARTURES							AVERAGE TRAVEL TIME		
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	FX THRESH TO	THRESH TO GATE	GATE TO ROLL
7-8	12.0	0	0	18.0	30.0	29	+1.0	0	20.0	20.7	0	40.7	48	-7.3	9.9	4.9	10.3
8-9	16.0	0	0	18.0	36.0	39	-3.0	0	22.3	19.8	0	42.1	64	-21.7	12.7	4.7	23.4
9-10	14.0	0	0	23.7	37.7	40	-2.3	0	23.2	12.3	0	35.5	52	-16.5	14.6	5.0	40.1
10-11	17.0	0	0	23.0	40.0	50	-10.0	0	22.5	14.1	0	36.6	48	-11.3	20.2	6.7	59.2
11-12	20.5	0	0	23.2	43.7	59	-15.3	0	18.3	16.4	0	34.7	52	-11.3	31.6	7.9	74.8
12-13	18.2	0	0	21.5	39.7	45	-5.3	0	18.4	16.7	0	35.1	65	-24.9	51.7	13.4	82.6
13-14	14.1	0	0	18.9	33.0	42	-4.0	0	17.2	16.7	0	33.9	51	-17.1	56.6	11.7	84.2
14-15	13.8	0	0	18.4	32.2	47	-14.8	0	18.4	15.1	0	33.5	39	-5.5	55.9	8.8	97.7
ARRIVAL DELAYS							DEPARTURE DELAYS							GRAND TOTAL			
AVERAGE							AVERAGE							TOTAL			
TIME	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI OUT	RWY CONG.	ARR. DELAY	DEP. DELAY
7-8	0.7	0	0	0.5	0.6	0.2	0.2	0	1.9	6.4	0	1.2	0.1	0.3	0.0	1.0	4.6
8-9	3.9	0	0	2.2	3.0	0.3	0.1	0	14.4	13.1	0	16.0	0.0	0.4	1.0	3.3	17.1
9-10	1.0	0	0	7.9	5.3	0.2	0.4	0	24.8	33.8	0	27.7	0.0	0.6	6.0	5.4	34.3
10-11	1.2	0	0	17.8	10.7	0.2	2.2	0	24.0	57.2	0	36.5	0.0	0.8	16.1	13.1	53.4
11-12	9.1	0	0	34.0	22.4	0.3	3.1	0	33.2	58.2	0	44.5	0.0	1.1	23.6	20.8	67.2
12-13	22.6	0	0	53.7	42.0	0.3	8.6	0	27.9	64.1	0	46.0	0.0	1.3	29.9	50.1	77.2
13-14	11.1	0	0	69.0	42.5	0.3	7.6	0	28.5	61.3	0	45.5	0.0	1.2	32.7	55.4	79.1
14-15	2.2	0	0	70.5	47.0	0.2	4.8	0	21.1	72.6	0	46.3	0.0	2.8	43.5	52.0	92.1

LAX - STAGE 1EXPERIMENT NO. 8Objective:

To obtain baseline delay estimates for the following runway configurations in IFR 1 for 1982 demand.

To obtain delay estimates for 1982 with no improvements to the airport.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Experiment 12 is identical but with an improved ATC system (1982) scenario and the 1982 near-term improvements.

Prior Experiment #2 is identical except for a 1978 demand.

TABLE 14

## SUMMARY OF RESULTS

EXPERIMENT NO. 8 (MODIFIED P-44P(1))

TIME	AVERAGE FLOW RATES													AVERAGE TRAVEL TIME			
	ARRIVALS						DEPARTURES						DIFF.	THRESH. TO GATE	THRESH. TO GATE	THRESH. TO GATE	ROLL
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND					
7-8	4.0	0	0	22.0	26.0	25	0	18.0	23.0	0	41.0	48	-7.0	12.2	4.1	7.4	
8-9	20.0	0	0	24.1	44.1	45	0	24.8	27.9	0	52.7	64	-11.3	13.9	4.6	14.7	
9-10	8.0	0	0	25.5	33.5	41	0	35.3	23.8	0	59.1	54	7.5	17.9	7.4	12.8	
10-11	20.0	0	0	27.0	49.0	53	0	31.6	20.4	0	52.0	48	4.0	20.9	4.1	19.0	
11-12	25.4	0	0	27.4	52.8	62	0	23.2	27.9	0	51.1	52	-0.9	26.1	4.7	9.1	
12-13	24.2	0	0	26.1	50.3	44	0	26.1	32.7	0	58.8	65	-6.3	35.7	7.7	12.0	
13-14	14.5	0	0	25.1	39.6	40	0	31.2	23.7	0	54.6	54	-0.6	30.1	4.6	14.8	
14-15	21.1	0	0	26.5	47.6	53	0	20.1	25.7	0	45.8	41	4.8	29.5	4.7	9.0	
TIME	ARRIVAL DELAYS													GRAND TOTAL			
	AVERAGE													TOTAL			
7-8	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY	
8-9	0.6	0	0	4.3	5.6	0.2	0	0.8	2.2	0	1.6	0.0	0.3	0.0	3.7	1.1	
9-10	2.7	0	0	5.7	4.3	0.3	0	4.3	7.3	0	8.2	0.0	0.6	0.1	4.6	3.1	
10-11	0.0	0	0	10.9	8.3	0.2	0	13.5	4.8	0	10.0	0.0	0.7	2.3	8.7	13.0	
11-12	8.7	0	0	16.7	11.0	0.2	0	12.8	3.9	0	9.3	0.0	0.5	2.8	11.3	12.6	
12-13	14.0	0	0	23.3	16.2	0.2	0	4.4	3.1	0	3.2	0.0	0.3	0.1	16.5	3.5	
13-14	5.5	0	0	38.3	26.6	0.2	0	7.5	5.1	0	6.1	0.0	0.3	0.0	21.9	4.1	
14-15	2.3	0	0	30.3	21.2	0.2	0	8.9	4.6	0	8.7	0.0	0.4	0.1	21.5	4.2	
				34.5	20.2	0.2	0	3.6	2.7	0	3.2	0.0	0.2	0.1	20.5	3.5	

TABLE 15

## SUMMARY OF RESULTS

EXPERIMENT NO. 8A (MODIFIED DEMAND)

TIME	AVERAGE FLOW RATES														AVERAGE TRAVEL TIME					
	ARRIVALS					DEPARTURES					FIX TO THRESH	THRESH TO GATE	GATE TO ROLL							
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R				RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.			
7-8	7.0	0	0	21.5	28.5	26	+2.5	0	24.0	20.0	0	44.0	50	-6.0	12.2	4.2	7.1			
8-9	17.6	0	0	24.0	41.6	47	-5.4	0	24.5	30.9	0	55.4	67	-11.4	14.6	4.6	12.6			
9-10	11.4	0	0	26.9	38.3	43	-4.7	0	29.2	26.7	0	55.9	57	-1.1	18.8	4.3	19.9			
10-11	12.8	0	0	26.4	45.2	56	-10.8	0	27.7	23.3	0	56.0	50	6.0	24.9	4.6	22.4			
11-12	25.1	0	0	27.9	53.0	65	-12.0	0	27.0	23.1	0	50.1	55	-4.9	33.2	4.5	9.8			
12-13	19.6	0	0	23.8	43.4	46	-2.6	0	23.4	31.6	0	55.0	68	-12.0	45.3	4.7	15.8			
13-14	14.1	0	0	21.3	35.4	42	-6.1	0	23.1	26.4	0	49.5	57	-7.5	58.8	4.3	16.2			
14-15	19.0	0	0	22.1	41.1	55	-13.9	0	23.1	19.6	0	42.7	43	-0.3	52.8	4.2	12.9			
TIME	ARRIVAL DELAYS														DEPARTURE DELAYS				GRAND TOTAL	
	AVERAGE														AVERAGE				TOTAL	
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY			
	7-8	0.0	0	0	3.9	4.7	0.2	0.1	0	1.2	1.5	0	1.3	0.0	0.3	0.0	3.2	1.6		
8-9	1.3	0	0	3.2	5.3	0.2	0.2	0	5.8	6.9	0	6.7	0.0	0.5	0.0	5.9	1.9			
9-10	0.3	0	0	13.2	7.3	0.2	0.1	0	15.1	9.6	0	12.4	0.0	0.6	1.2	4.6	14.2			
10-11	4.8	0	0	24.2	15.5	0.2	0.1	0	12.2	7.7	0	12.4	0.0	0.5	3.8	15.8	16.7			
11-12	13.2	0	0	32.8	23.5	0.1	0.1	0	4.4	2.1	0	3.3	0.0	0.3	0.0	23.7	9.6			
12-13	9.7	0	0	55.1	35.8	0.2	0.1	0	10.1	9.5	0	9.8	0.0	0.2	0.4	36.1	10.4			
13-14	2.3	0	0	25.0	44.9	0.1	0.1	0	11.4	8.5	0	9.9	0.0	0.3	0.9	50.1	11.1			
14-15	5.3	0	0	68.0	43.6	0.2	0.1	0	7.5	5.5	0	7.0	0.0	0.2	0.6	44.1	7.8			

TABLE 16

## SUMMARY OF RESULTS

EXPERIMENT NO. **88** (Model L. D. DELINCO)

TIME	AVERAGE FLOW RATES													AVERAGE TRAVEL TIME				
	ARRIVALS					DEPARTURES					DIFF.			FIX TO THRESH	THRESH TO GATE	GATE TO ROLL		
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE-MAND					
7-8	7.0	0	0	22.4	29.4	29	+0.4	0	22.5	25.5	0	0	46.0	55	-7.0	11.5	4.3	7.9
8-9	21.5	0	0	23.2	44.7	51	-6.3	0	25.1	28.1	0	0	53.2	74	-10.8	13.2	4.9	17.8
9-10	14.3	0	0	23.8	37.1	46	-8.9	0	27.9	28.7	0	0	56.6	62	-5.6	21.8	4.7	30.0
10-11	17.3	0	0	23.1	40.4	61	-20.6	0	26.6	31.4	0	0	58.0	55	13.0	32.0	4.7	35.3
11-12	20.3	0	0	24.5	44.8	71	-26.2	0	28.7	26.6	0	0	55.3	60	-4.9	50.1	4.5	23.4
12-13	19.6	0	0	24.7	44.3	50	-5.1	0	31.2	27.9	0	0	59.1	74	-1.7	68.8	4.3	20.3
13-14	19.9	0	0	23.3	43.2	46	-2.8	0	23.6	26.0	0	0	49.6	62	-12.4	67.5	4.4	19.4
14-15	19.7	0	0	24.8	44.5	60	-15.5	0	25.4	21.3	0	0	46.0	47	-1.0	64.5	4.3	21.7
TIME	ARRIVAL DELAYS					DEPARTURE DELAYS					AVERAGE			GRAND TOTAL				
	AVERAGE					AVERAGE					AVERAGE			TOTAL				
7-8	RWY 24R 0.0	RWY 24L 0	RWY 25R 0	RWY 25L 3.4	ALL RWY 2.6	RWY CROSS 0.2	TAXI-IN 0.1	RWY 24R 0	RWY 24L 1.7	RWY 25R 2.4	RWY 25L 0	ALL RWY 2.1	RWY CROSS 0.0	TAXI-OUT 0.4	RWY CONG. 0.0	ARR. DELAY 2.7	DEP. DELAY 2.5	
8-9	RWY 24R 3.6	RWY 24L 0	RWY 25R 0	RWY 25L 3.7	ALL RWY 3.6	RWY CROSS 0.2	TAXI-IN 0.1	RWY 24R 0	RWY 24L 13.4	RWY 25R 9.7	RWY 25L 0	ALL RWY 11.4	RWY CROSS 0.0	TAXI-OUT 0.4	RWY CONG. 0.4	ARR. DELAY 3.1	DEP. DELAY 14.2	
9-10	RWY 24R 4.8	RWY 24L 0	RWY 25R 0	RWY 25L 17.3	ALL RWY 12.5	RWY CROSS 0.1	TAXI-IN 0.4	RWY 24R 0	RWY 24L 19.3	RWY 25R 18.5	RWY 25L 0	ALL RWY 18.8	RWY CROSS 0.0	TAXI-OUT 0.7	RWY CONG. 4.8	ARR. DELAY 13.0	DEP. DELAY 24.3	
10-11	RWY 24R 4.6	RWY 24L 0	RWY 25R 0	RWY 25L 34.7	ALL RWY 23.5	RWY CROSS 0.1	TAXI-IN 0.3	RWY 24R 0	RWY 24L 21.4	RWY 25R 17.1	RWY 25L 0	ALL RWY 19.1	RWY CROSS 0.0	TAXI-OUT 0.8	RWY CONG. 9.7	ARR. DELAY 22.7	DEP. DELAY 29.6	
11-12	RWY 24R 19.3	RWY 24L 0	RWY 25R 0	RWY 25L 54.4	ALL RWY 40.8	RWY CROSS 0.2	TAXI-IN 0.2	RWY 24R 0	RWY 24L 15.8	RWY 25R 3.5	RWY 25L 0	ALL RWY 9.9	RWY CROSS 0.0	TAXI-OUT 0.8	RWY CONG. 7.2	ARR. DELAY 41.2	DEP. DELAY 17.9	
12-13	RWY 24R 35.0	RWY 24L 0	RWY 25R 0	RWY 25L 73.2	ALL RWY 59.4	RWY CROSS 0.1	TAXI-IN 0.2	RWY 24R 0	RWY 24L 15.1	RWY 25R 4.8	RWY 25L 0	ALL RWY 10.4	RWY CROSS 0.0	TAXI-OUT 0.6	RWY CONG. 3.7	ARR. DELAY 34.7	DEP. DELAY 14.7	
13-14	RWY 24R 31.5	RWY 24L 0	RWY 25R 0	RWY 25L 81.4	ALL RWY 58.7	RWY CROSS 0.2	TAXI-IN 0.2	RWY 24R 0	RWY 24L 16.8	RWY 25R 4.7	RWY 25L 0	ALL RWY 10.4	RWY CROSS 0.0	TAXI-OUT 0.5	RWY CONG. 3.4	ARR. DELAY 34.1	DEP. DELAY 14.3	
14-15	RWY 24R 14.8	RWY 24L 0	RWY 25R 0	RWY 25L 84.4	ALL RWY 55.8	RWY CROSS 0.2	TAXI-IN 0.2	RWY 24R 0	RWY 24L 17.4	RWY 25R 4.6	RWY 25L 0	ALL RWY 11.6	RWY CROSS 0.0	TAXI-OUT 0.6	RWY CONG. 4.1	ARR. DELAY 36.2	DEP. DELAY 16.3	

LAX - STAGE 1  
EXPERIMENT NO. 12

Objective:

To assess delays to aircraft in 1982 for the following runway configuration in IFR 1 with an improved ATC system scenario (1982) and the 1982 near-term improvements.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Prior Experiment #8 is similar except for the noted improvements and a 1978 ATC system scenario.

TABLE 17

## SUMMARY OF RESULTS

EXPERIMENT NO. 12 (MODIFIED DEMAND)

TIME	AVERAGE FLOW RATES												AVERAGE TRAVEL TIME			
	ARRIVALS						DEPARTURES						FLX TO THRESH.	ARR. TO GATE	DEP. DELAY	GATE TO ROLL
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE- MAND	DIFF.	RWY 24R	RWY 24L	RWY 25R	RWY 25L	AVG. TOTAL FLOW	DE- MAND	DIFF.		
7-8	40	0	0	23.0	26.0	25	+1.0	0	15.0	26.0	0	41.0	48	-7.0	40	6.3
8-9	20.0	0	0	23.5	43.5	45	-1.3	0	16.1	38.2	0	54.3	64	-9.7	47	13.3
9-10	80	0	0	23.9	31.9	41	-9.1	0	27.7	36.7	0	64.4	54	+10.4	43	13.5
10-11	22.2	0	0	27.9	50.1	53	-2.9	0	15.2	31.9	0	46.6	48	-1.4	47	12.8
11-12	25.8	0	0	31.0	56.8	62	-5.2	0	18.0	33.2	0	50.2	52	-1.8	47	8.0
12-13	25.0	0	0	23.9	48.9	44	+4.1	0	17.0	37.5	0	54.5	65	-10.5	49	14.3
13-14	11.0	0	0	24.3	35.3	40	-4.7	0	21.0	36.7	0	57.7	54	13.7	45	15.5
14-15	22.0	0	0	28.8	50.8	53	-2.2	0	11.1	33.7	0	44.8	41	+3.8	46	10.4
GRAND TOTAL																
TIME	AVERAGE												AVERAGE			
	ARRIVAL DELAYS						DEPARTURE DELAYS						RWY CONG.	TAXI-OUT	RWY CROSS	ARR. DELAY
	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY	RWY CROSS	TAXI-IN	RWY 24R	RWY 24L	RWY 25R	RWY 25L	ALL RWY				
7-8	0.0	0	0	2.2	1.9	0.2	0.2	0	0.1	1.5	0	1.0	0.0	0.2	0.0	2.3
8-9	1.2	0	0	6.3	4.0	0.2	0.2	0	1.3	9.6	0	7.1	0.0	0.5	1.0	4.4
9-10	0.0	0	0	13.4	10.4	0.2	0.2	0	2.2	11.3	0	7.4	0.0	0.5	0.7	10.8
10-11	1.4	0	0	22.8	13.2	0.1	0.1	0	1.9	8.8	0	6.6	0.0	0.6	0.7	8.6
11-12	1.3	0	0	25.7	14.6	0.2	0.1	0	2.0	2.9	0	2.6	0.0	0.3	0.0	13.4
12-13	3.3	0	0	38.9	20.7	0.2	0.2	0	1.7	10.9	0	8.0	0.0	0.7	0.0	14.9
13-14	0.4	0	0	38.0	26.2	0.2	0.1	0	2.2	12.5	0	8.7	0.0	0.5	1.0	21.1
14-15	1.1	0	0	38.0	24.0	0.2	0.1	0	0.7	6.1	0	4.8	0.0	0.3	0.3	26.5
GRAND TOTAL																



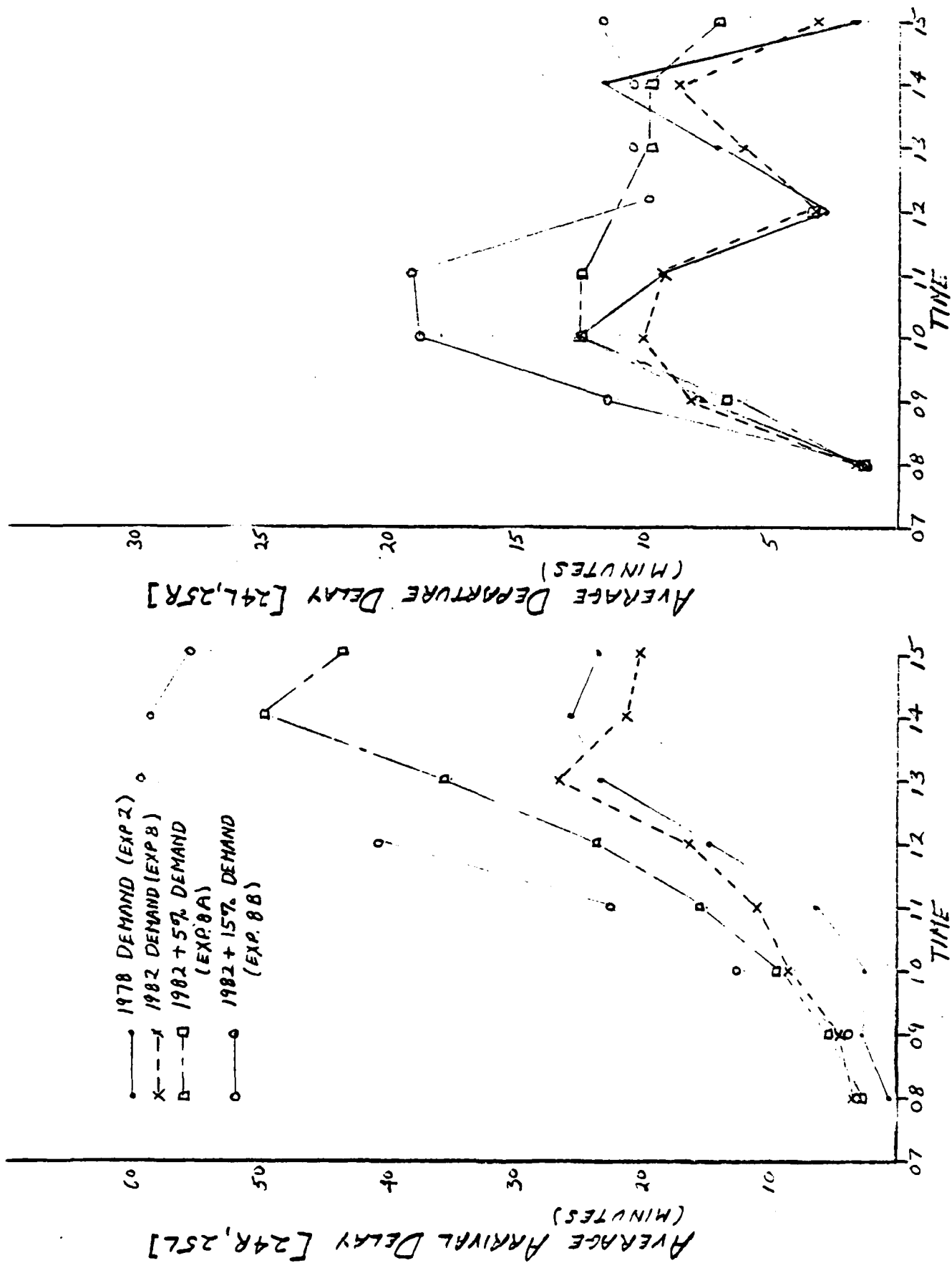


FIGURE 11 IFR-I (1978) COMPARISON - WESTERNLY FLOW

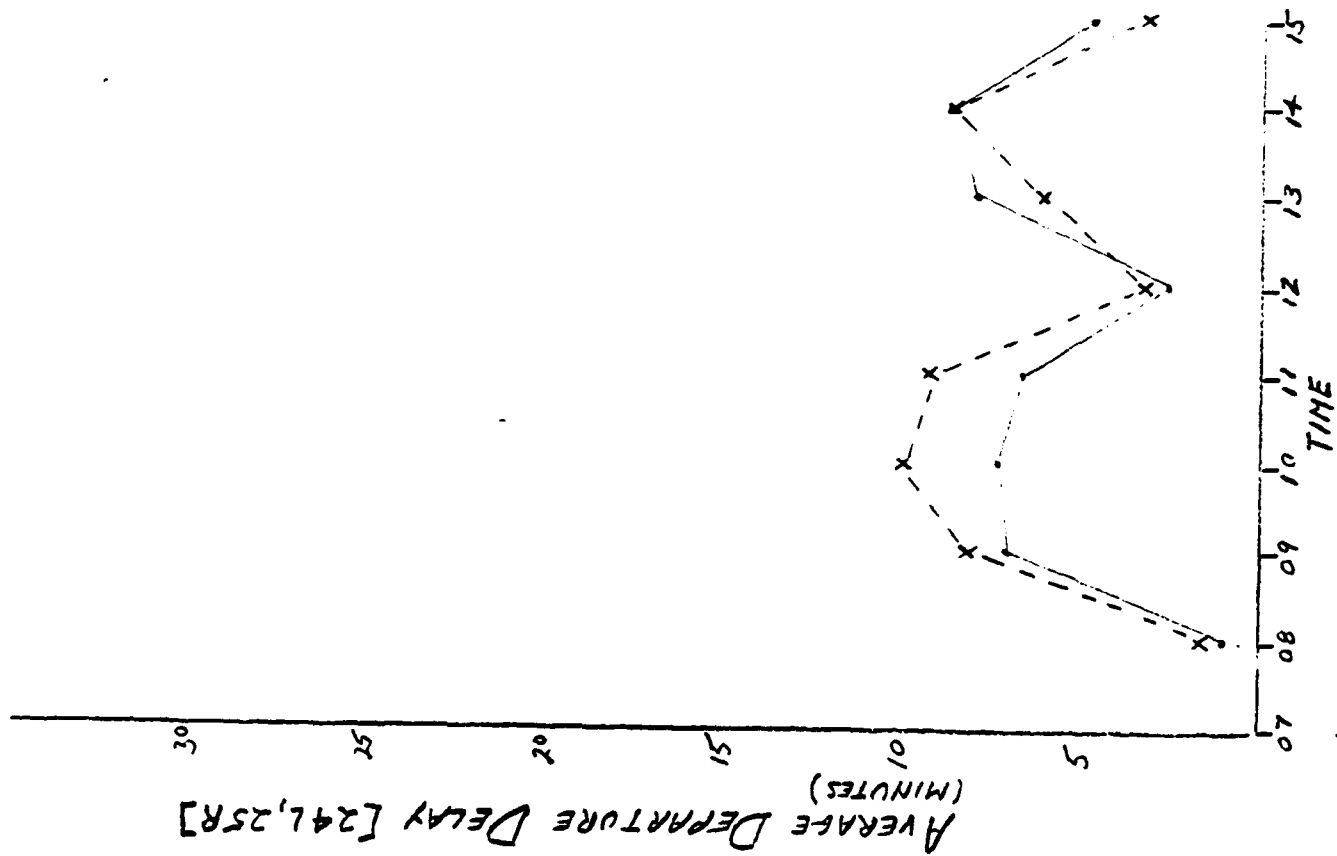
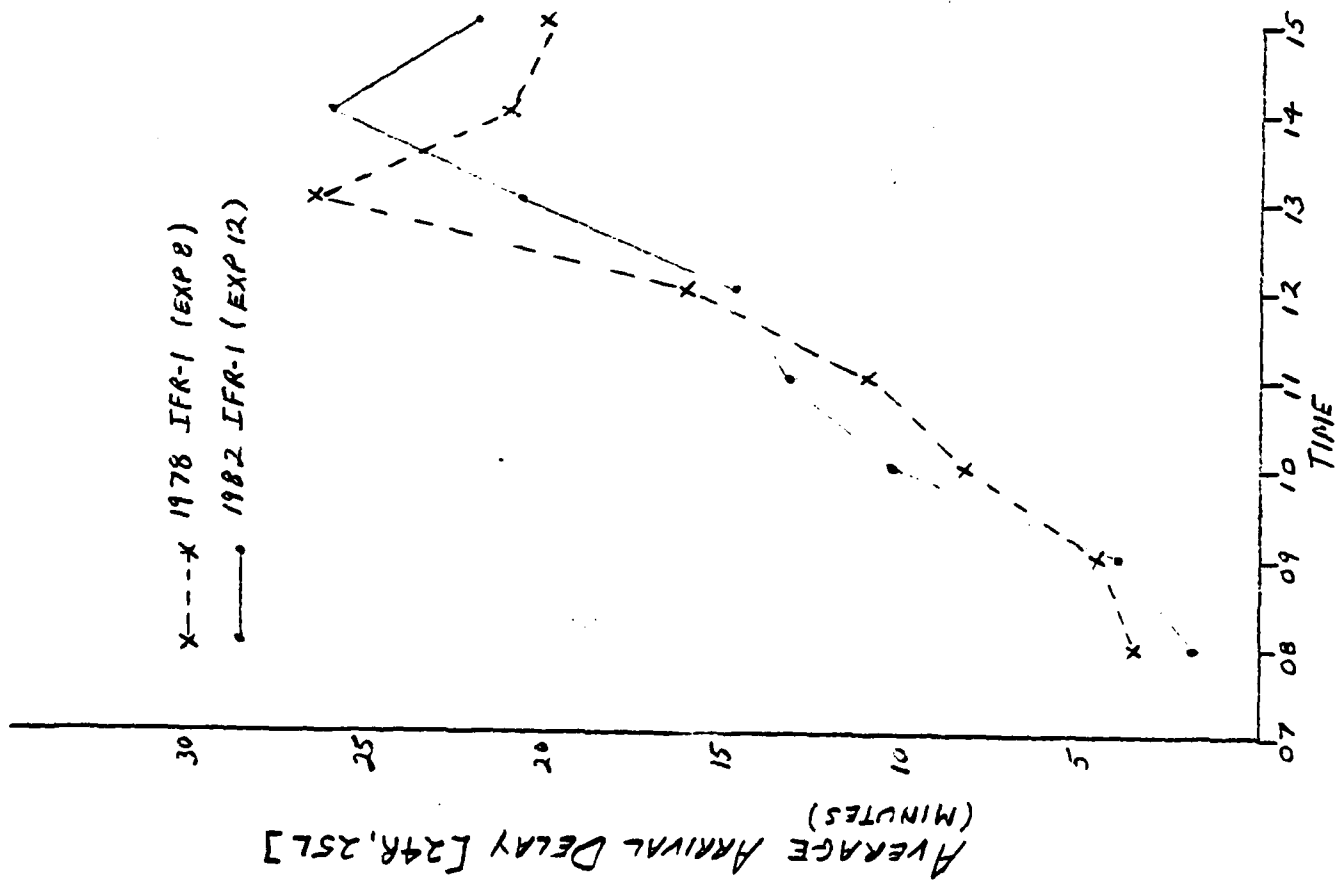


FIGURE 12 IFR-1 (1978 AND 1982) COMPARISON-WESTERN FLOW

LAX - STAGE 1  
EXPERIMENT NO. 6

Objective:

To obtain baseline delay estimates for the following runway configuration in VFR 1 for 1978 demand for east operations.

ARRIVAL RUNWAYS

6R, 6L, 7R, 7L

DEPARTURE RUNWAYS

6R, 6L, 7R, 7L

Related Comparison Experiments:

Experiment #9 is identical except for the 1982 demand.

LAX - STAGE 1EXPERIMENT NO. 9Objective:

To obtain baseline delay estimates for the following runway configurations in VFR 1 for 1982 demand for east operations.

To obtain delay estimates for 1982 with no improvements to the airport for east operations.

ARRIVAL RUNWAYS

6R, 6L, 7R, 7L

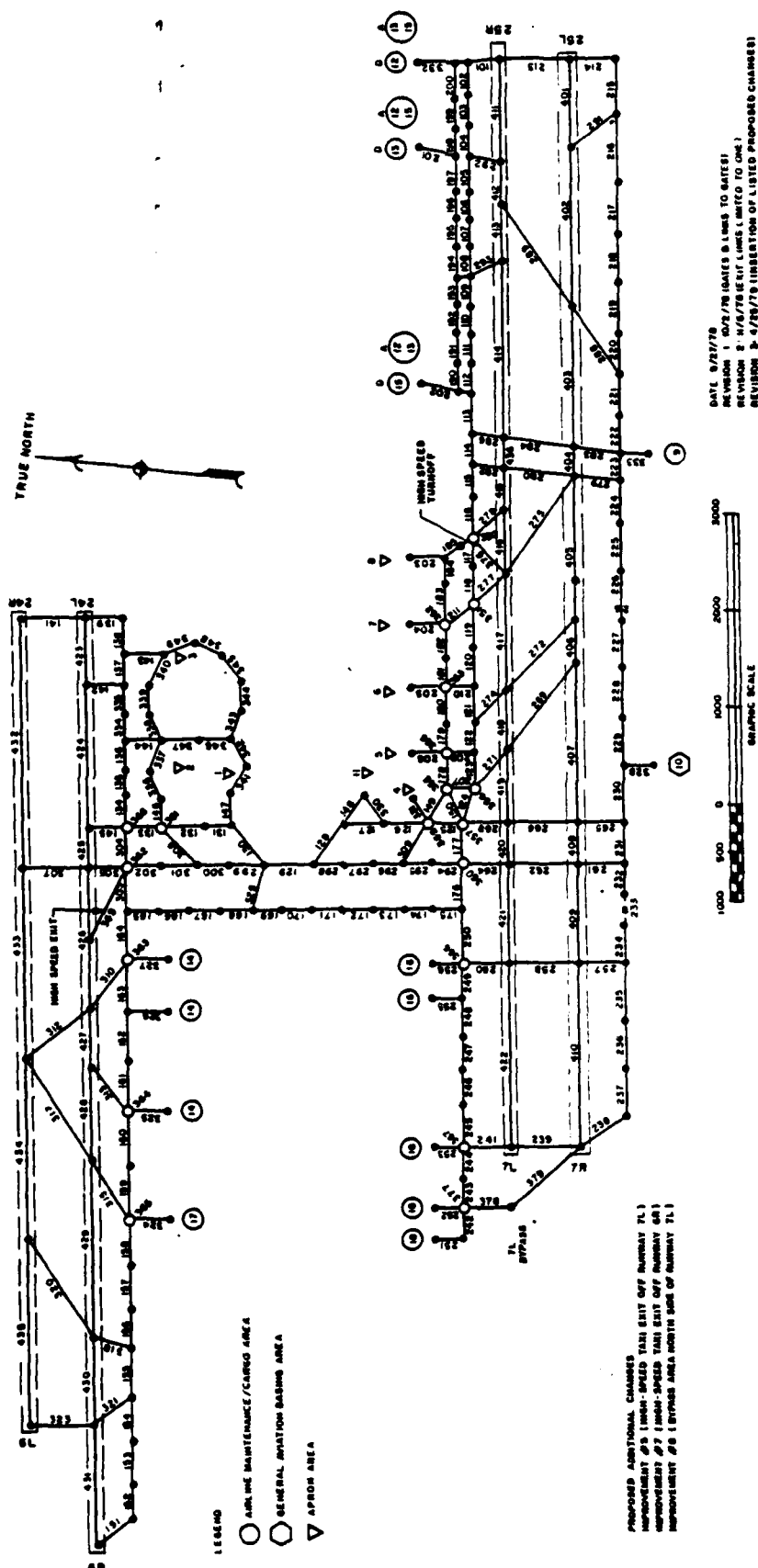
DEPARTURE RUNWAYS

6R, 6L, 7R, 7L

Related Comparison Experiments:

Experiment #16 is identical except for near-term improvements #5, #7, and #8 and a 1982 ATC system scenario.

Prior Experiment #6 is similar with a 1978 demand.



LAX - STAGE 1EXPERIMENT NO. 16Objective:

To assess delays to aircraft in two of the following runway configurations in VFR 1 with near-term improvements #5, #7, and #8 for east operations and a 1982 ATC system scenario.

ARRIVAL RUNWAYS

6R, 6L, 7R, 7L

DEPARTURE RUNWAYS

6R, 6L, 7R, 7L

Related Comparison Experiments:

Prior Experiment #9 is identical except for noted improvements to the airport and an improved ATC system scenario.

LAX - STAGE 1  
EXPERIMENT NO. 4

Objective:

To obtain baseline delay estimates for the following runway configuration in VFR 1 for 1978 demand for nighttime operations.

ARRIVAL RUNWAYS

6R, 7L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Experiment 5 is identical except for IFR 1 weather conditions.

Experiment 10 is identical except for 1982 demand.

TABLE 18

## SUMMARY OF RESULTS

EXPERIMENT NO. 4

TIME	AVERAGE FLOW RATES													AVERAGE TRAVEL TIME			
	ARRIVALS						DEPARTURES							FIX TO THRESH	THRESH TO GATE	GATE TO ROLL	
	RWY 6R	RWY 7L	RWY 24L	RWY 25R	AVG. TOTAL FLOW	DE-MAND	DIFF.	RWY 6R	RWY 7L	RWY 24L	RWY 25R	AVG. TOTAL FLOW	DE-MAND				DIFF.
0-1	3.0	14.0	0	0	17.0	19	-2.0	0	0	8.0	5.0	13.0	14	-11.0	11.4	4.6	12.8
1-2	4.0	15.0	0	0	19.0	18	-1.0	0	0	4.5	8.0	12.5	19	+3.5	14.7	4.3	14.9
2-3	5.0	5.0	0	0	10.0	14	+4.0	0	0	0.0	9.0	7.0	9	0.0	25.8	4.7	22.7
3-4	1.0	9.0	0	0	10.0	5	+5.0	0	0	16.0	1.0	17.0	4	+13.0	32.0	4.1	97.7
4-5	1.0	9.0	0	0	10.0	10	0.0	0	0	6.5	5.0	11.5	7	+4.5	10.7	4.6	35.2
5-6	3.0	3.0	0	0	6.0	7	-1.0	0	0	4.0	4.5	8.5	10	-1.5	11.0	4.7	7.3
6-7	6.5	6.5	0	0	13.0	16	-3.0	0	0	12.0	7.0	9.5	17	-7.5	10.3	4.4	17.1
7-8	3.5	6.5	0	0	10.0	29	-19.0	0	0	8.5	9.5	18.0	48	-30.0	14.4	4.0	10.6
TIME	ARRIVAL DELAYS						DEPARTURE DELAYS							GRAND TOTAL			
	AVERAGE						AVERAGE										
0-1	RWY 6R	RWY 7L	RWY 24L	RWY 25R	ALL RWY	RWY CROSS	TAXI-IN	RWY 6R	RWY 7L	RWY 24L	RWY 25R	ALL RWY	RWY CROSS	TAXI-OUT	RWY CONG.	ARR. DELAY	DEP. DELAY
1-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2	10.1	13.2	0.0	0.0	0.0	0.3	13.2
2-3	11.2	22.8	0.0	0.0	4.0	0.0	0.1	0.0	0.0	45.8	36.7	39.1	0.0	0.0	0.0	4.1	34.1
3-4	9.0	22.7	0.0	0.0	17.0	0.0	0.0	0.0	0.0	0.0	16.7	16.7	0.0	0.0	0.0	17.0	16.7
4-5	0.0	0.1	0.0	0.0	24.3	0.0	0.1	0.0	0.0	72.9	9.2	69.1	0.0	0.0	1.7	22.3	70.8
5-6	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	18.0	5.7	13.5	0.0	0.2	7.2	0.2	20.7
6-7	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	3.6	1.9	0.0	0.0	0.0	0.2	1.9
7-8	4.0	7.1	0.0	0.0	5.9	0.0	0.1	0.0	0.0	15.4	2.8	11.2	0.0	0.0	0.0	0.2	11.2
										17.3	23.5	14.7	0.0	0.2	0.0	0.0	24.9



LAX - STAGE 1

EXPERIMENT NO. 5

Objective:

To obtain baseline delay estimates for the following runway configuration in IFR1 for 1978 demand.

ARRIVAL RUNWAYS

6R, 7L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Experiment # 10A is identical except for the 1982 demand.

LAX - STAGE 1  
EXPERIMENT NO. 10

Objective:

To obtain baseline delay estimates for the following runway configurations in VFR 1 for 1982 demand.

To obtain delay estimates for 1982 with no improvements to the airport.

ARRIVAL RUNWAYS

6R, 7L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Experiment 10A is identical except for IFR 1 weather conditions.

Experiment 15 is identical except for near-term improvements #5 and #7 and an improved ATC system scenario.

Prior Experiment 4 is identical except for 1978 demand.

LAX - STAGE 1  
EXPERIMENT NO. 10A

Objective:

To obtain baseline delay estimates for the following runway configuration in IFR 1 for 1982 demand.

To obtain delay estimates for 1982 with no improvements to the airport.

ARRIVAL RUNWAYS

6R, 7L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Prior Experiment 5 is similar with a 1978 demand.

LAX - STAGE 1EXPERIMENT NO. 15Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved (1982) ATC system scenario and near-term improvements #5 and #7 for nighttime operations.

ARRIVAL RUNWAYS

6R, 7L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Prior Experiment 10 is similar without the noted improvements and an improved ATC system scenario.

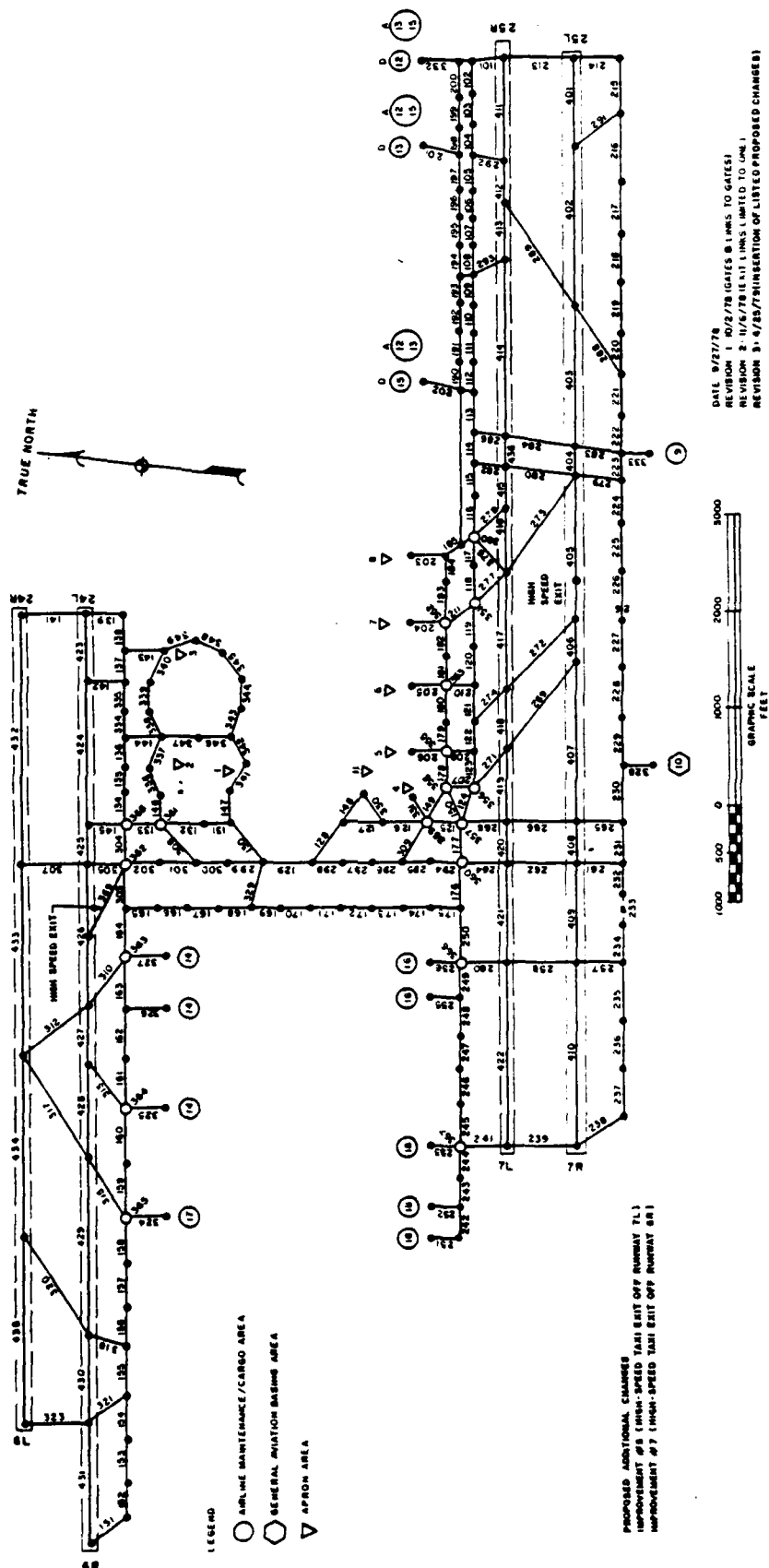


Figure 14 LAX LINK NODE DIAGRAM  
(HIGH SPEED EXITS OFF 7L AND 6R)

ATTACHMENT D

LOS ANGELES STAGE 2 DELAY EXPERIMENTS

LOS ANGELES INTERNATIONAL AIRPORT

AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES

LAX - STAGE 2EXPERIMENT NO. 18Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved ATC system scenario (1982) and improvement #10 (taxiways).

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Prior Experiment #11 is identical except for improvement #10 (taxiway improvements).

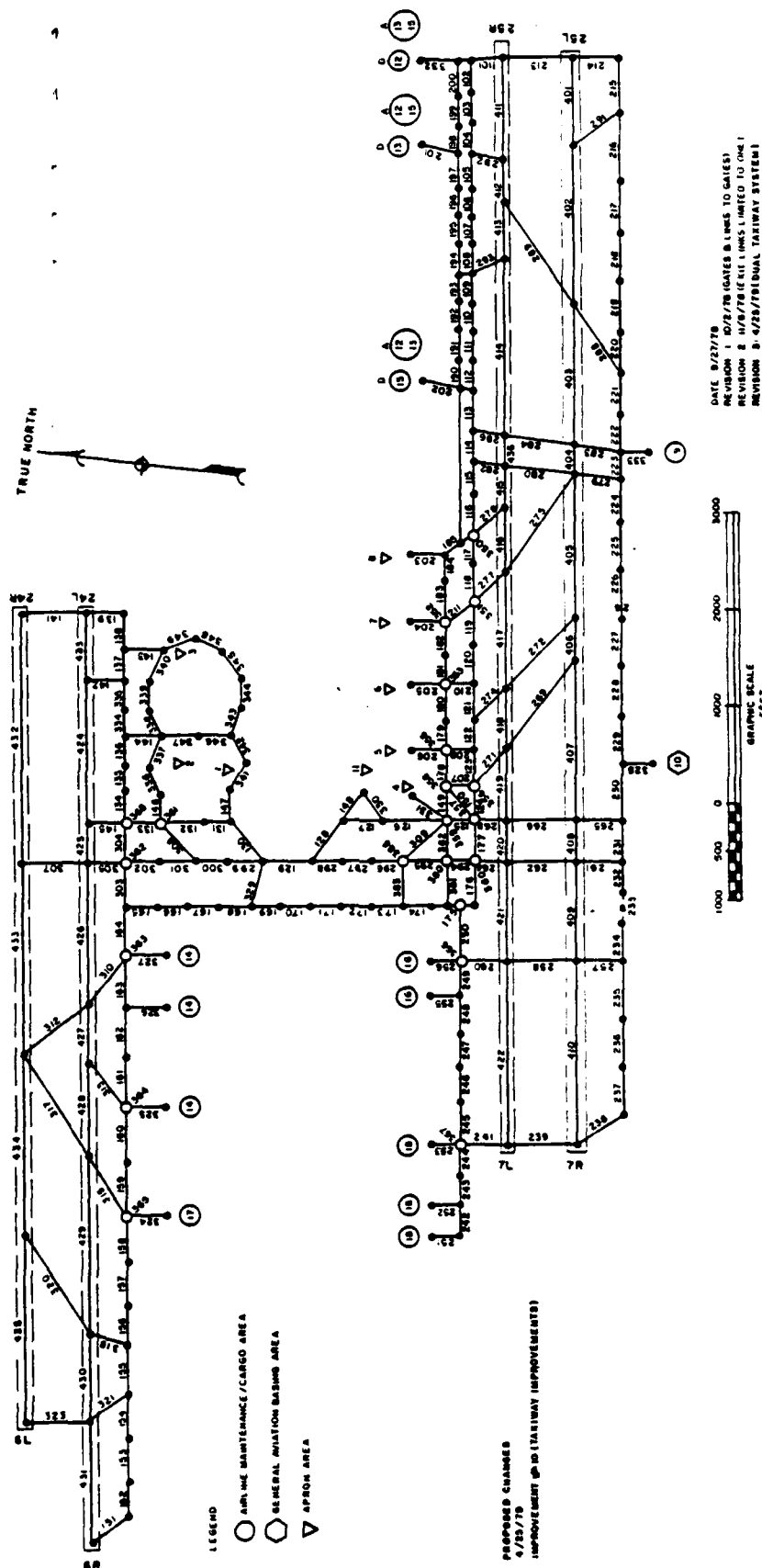


Figure 15 LAX LINK NODE DIAGRAM (DUAL TAXIWAY)



LAX - STAGE 2EXPERIMENT NO. 19AObjective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with terminal expansion.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Experiment #20 is identical except for an improved ATC system scenario.

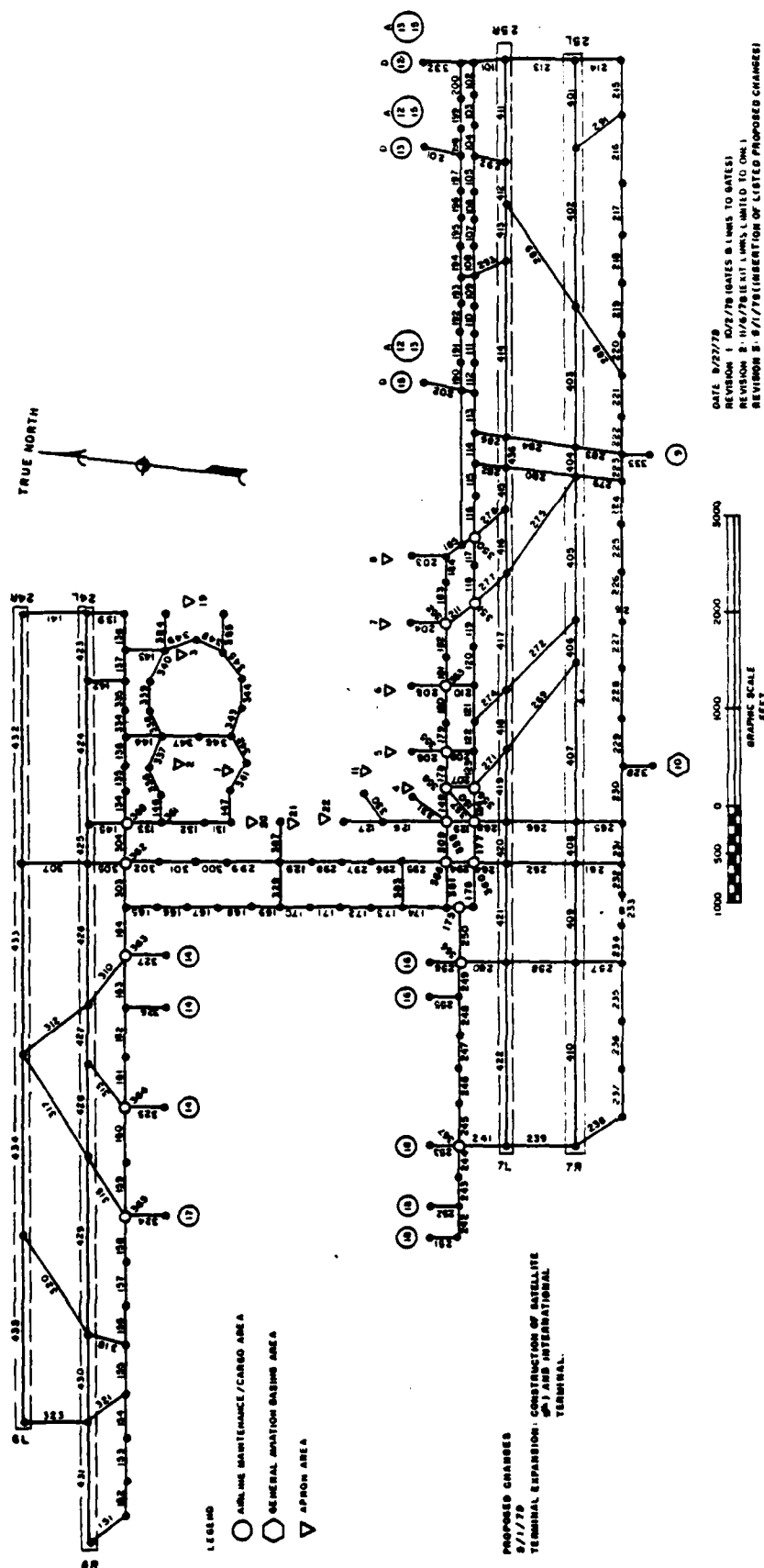


Figure 16 LAX LINK NODE DIAGRAM (TERMINAL EXPANSION)

LAX - STAGE 2EXPERIMENT NO. 20Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved ATC system scenario and terminal expansion.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Experiment #21 is identical except for remote parking for 20 aircraft at west end of airport in place of terminal expansion.

Prior Experiment #19A is identical except for a 1978 ATC system scenario

LAX - STAGE 2EXPERIMENT NO. 21Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved ATC system scenario and remote parking for 20 aircraft.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Prior Experiment #20 is identical except for remote parking for 20 aircraft at west end of airport in place of terminal expansion.

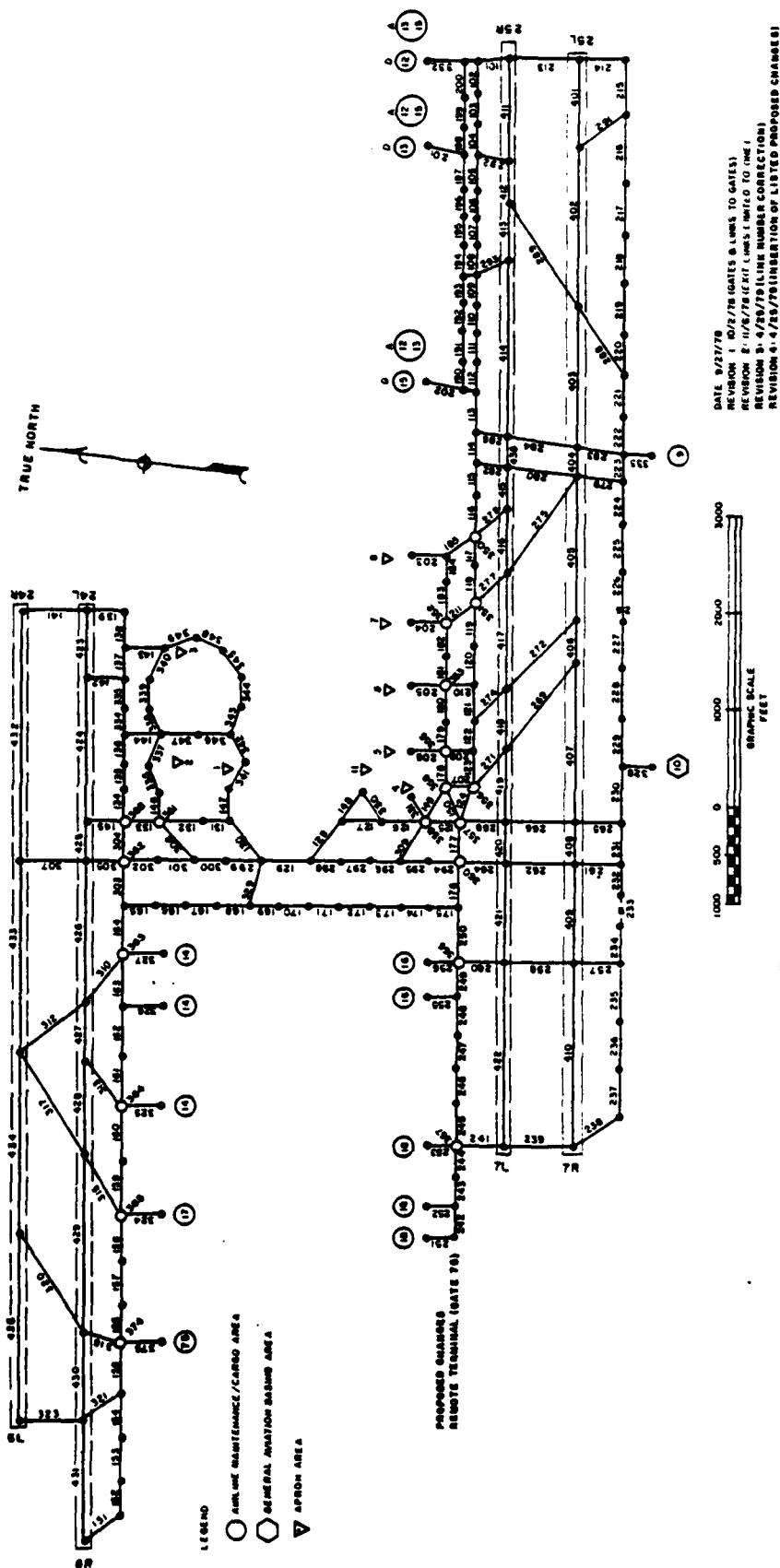


Figure 17 LAX LINK NODE DIAGRAM  
(REMOTE TERMINAL)

LAX - STAGE 2EXPERIMENT NO. 22Objective:

To assess the delay impact to aircraft in (1982) for the following runway configuration in VFR 1 due to the runway closure of 25R during work on the Spulveda Tunnel.

ARRIVAL RUNWAYS

24R, 24L, 25L

DEPARTURE RUNWAYS

24R, 24L, 25L

Related Comparison Experiments:

Prior Experiment #1 is identical except for closure of 25R for tunnel construction and a 1978 demand.

LAX - STAGE 2EXPERIMENT NO. 22AObjective:

To assess the delay impact to aircraft in 1982 for the following runway configuration in VFR 1 due to the runway closure of 25R during work on the Sepulveda Tunnel with a dual taxiway system around satellite 4.

ARRIVAL RUNWAYS

24L, 24R, 25L

DEPARTURE RUNWAYS

24L, 24R, 25L

Related Comparison Experiments:

Prior Experiment #22 is identical except for a dual taxiway system

LAX - STAGE 2EXPERIMENT NO. 23Objective:

To assess the delay impact to aircraft in (1982) for the following runway configuration in IFR 1 due to the runway closure of 25R during work on the Sepulveda Tunnel.

ARRIVAL RUNWAYS

24R, 25L

DEPARTURE RUNWAYS

24L, 25L

Related Comparison Experiments:

Prior experiment #2 is identical except for the closure of runway 25R for tunnel construction and a 1978 demand.



LAX - STAGE 2EXPERIMENT NO. 25 (25A)Objective:

To assess delays to aircraft in 1987 for the following runway configuration in VFR 1 with an improved 1987 ATC system scenario and 1982 improvements plus the satellite terminal and/or remote parking for 20 aircraft (1987 improvement package). Experiment #25A is with greater peaks.

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24R, 24L, 25R, 25L

Related Comparison Experiments:

Prior Experiment #11 is identical except for the improvements from 1982 to 1987 and the 1987 demand.

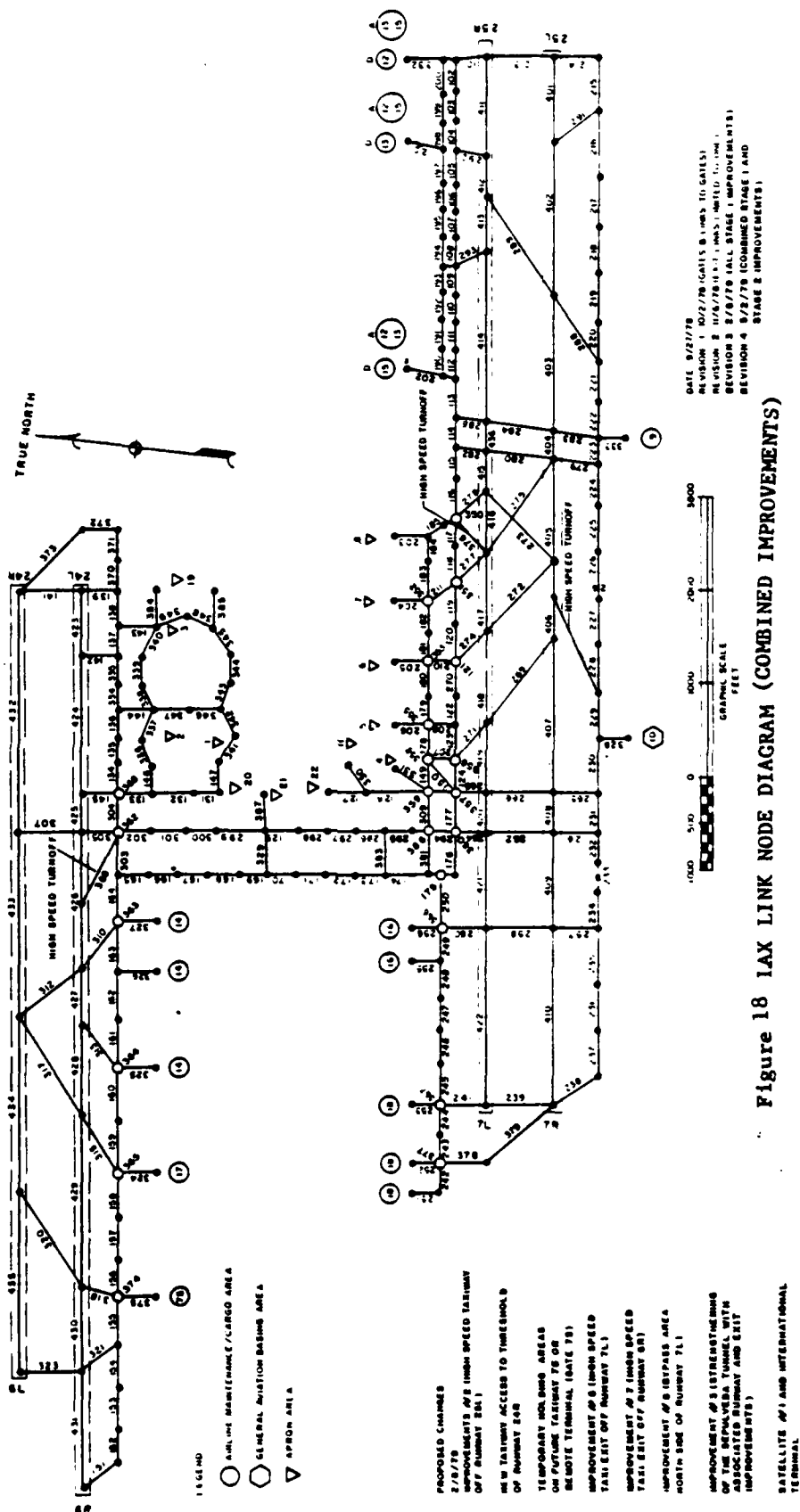


Figure 18 IAX LINK NODE DIAGRAM (COMBINED IMPROVEMENTS)

LAX - STAGE 2EXPERIMENT NO. 24Objective:

To assess the delay impact to aircraft in 1982 for the following runway configuration in IFR 1 due to the runway closure of 25L during work on the Sepulveda Tunnel

ARRIVAL RUNWAYS

24R, 25R

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Prior Experiment #2 is identical except for the closure of runway 25L for tunnel construction and a 1978 demand.

LAX - STAGE 2EXPERIMENT NO. 26Objective:

To assess delays to aircraft in 1987 for the following runway configuration in IFR 1 with an improved 1987 ATC system scenario and 1982 improvements plus the satellite terminal and/or remote parking for 20 aircraft.(1987 improvement package).

ARRIVAL RUNWAYS

24R, 24L, 25R, 25L

DEPARTURE RUNWAYS

24L, 25R

Related Comparison Experiments:

Prior Experiment #12 is identical except for the improvements from 1982 to 1987 and the demand.(1987)

